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# PHYSICS

## Classical Mechanics

*Srinivasa Rao, K.N.*

An attempt is made in this book to present a logical development of mechanics starting from its basic principles, and it may be regarded as a companion volume to the standard texts by well-known authors.

While the material on rigid bodies and analytical mechanics can be taught at the postgraduate level, selected topics from the earlier chapters serve as instructional material even at lower levels. Another feature of the book is the unusually large number of worked examples to enable the student to gain a deeper insight into the basic principles of mechanics.

**2003 ♦ 360 pp. ♦ Paperback**  
**978-81-7371-436-8 ♦ ₹ 475.00**

## Deterministic Chaos: Complex Chance out of Simple Necessity

*Kumar, N.*

This book defines, describes, and prescribes the newly emerged paradigm of complexity of change—how a simple system ruled by a deterministic law can evolve in a manner too complex to predict in detail in the long run. After explaining, through examples, the underlying idea of sensitive dependence on initial conditions caused by non-linearity, it describes the powerful qualitative techniques. The emphasis is on robust qualitative methods, and mathematics has been kept to a bare minimum.

**1996 ♦ 112 pp. ♦ Paperback**  
**978-81-7371-042-1 ♦ Print on demand**

## Engineering Physics

*Jain, Sanjay D. & Sahasrabudhe, Girish G.*

*Engineering Physics* has been conceived to develop a coherent, comprehensive and practical view of physics among engineering students. This will help them to develop fundamental ways of thinking and inventing in their future engineering practice. The book attempts to break the monotony of just stating theoretical concepts through the following 5 special features:

- The historical development of the subject is traced to show interesting links between the various topics.
- Theory and experiment are integrated and learning through scientific method is emphasised by seeking agreement between theory and experiment.
- Experiments are included at appropriate places to offer quantitative appreciation of parameters involved.
- Charts are used to facilitate comparative learning of topics that share the same unifying and founding aspects.
- Applications of each topic are discussed at the end of the chapter to give an idea of how engineering grows through the utilitarian translation of discoveries and concepts in physics.

**2010 ♦ 608 pp. ♦ Paperback**  
**978-81-7371-678-2 ♦ ₹ 390.00**

Prices are subject to change without notice

## PHYSICS

### **Excursions in Thermodynamics and Statistical Mechanics**

*Murthy, K. P. N.*

The book provides a pedagogical introduction to the history of concepts in heat, thermodynamics and statistical mechanics. The selection of topics is excellent; the prose is reader-friendly; the subject matter of the book is of fundamental importance to all students of science. The book motivates, excites and at times surprises the reader. The book is primarily on basic concepts and modern ideas. Some of the concepts described in the book are quite advanced, but they have been rendered understandable to undergraduate and even pre-university students.

**2009 ♦ 152 pp. ♦ Paperback**  
**978-81-7371-651-5 ♦ ₹ 190.00**

### **From Clockwork to Crapshot: A History of Physics**

*Newton, Roger G.*

The book provides the perspective needed to understand contemporary developments in physics in relation to philosophical traditions as far back as ancient Greece.

Roger G Newton presents a history of physics from the early beginning to our day—with the associated mathematics, astronomy, and chemistry. Along the way, he gives brief explanations of the scientific concepts at issue, biographical thumbnail sketches of the protagonists, and descriptions of the new instruments that enabled scientists to make their discoveries. He traces a profound transformation from a deterministic explanation of the world—accepted at least since the time of the ancient Greek and Taoist Chinese civilizations—to the notion of probability, enshrined as the very basis of science with the quantum evolution at the beginning of the twentieth century. This brought about a fundamental shift in the

focus of physicists—from dynamics or motion to the underlying architecture of the universe. Their new goal—to explain being rather than change—may well be the defining characteristic of physics in the twenty-first century.

**2008 ♦ 352 pp. ♦ Paperback**  
**978-81-7371-625-6 ♦ ₹ 395.00**

### **Frontiers in Materials Science**

*Baldev Raj & Bhanu Sankara Rao, K.*

This volume presents contributions by a galaxy of eminent scientists and technologists from the world over in a broad spectrum of areas in materials science, providing a global perspective on complex issues of current concern and the direction of research in these areas. The topics covered include nanocrystalline materials, mechanical behaviour of advanced materials, development and processing of intermetallics, composites and ceramics, welding science and technology, corrosion and surface engineering, science and engineering of bio-materials, testing and evaluation of advanced metallic and intermetallic materials, computational materials science, teaching of material science.

**2004 ♦ 876 pp. ♦ Paperback**  
**978-81-7371-507-5 ♦ Print on demand**

### **How and Why in Basic Mechanics**

*Kumar, A. & Barve, S.*

Among the formal physics textbooks, problem manuals and general expository books lies the domain of non-formal physics—the world of content-specific strategies and styles of reasoning that practising physicists employ but do not fully articulate in print. This book tries to capture some elements of this world through the medium of a teacher – student dialogue which runs through the many conceptual barriers that most students and teachers face in different topics of physics,

and offers helpful points, clarifications and insights.

**2002 ♦ 296 pp. ♦ Paperback**  
**978-81-7371-420-7 ♦ ₹ 375.00**

### Introduction to Mechanics

*Verma, Mahendra K.*

*Introduction to Mechanics* offers a modern introduction to Newtonian dynamics and the basics of special relativity.

Along with a discussion of standard topics—Newton's laws of motion, energy, linear and angular momentum, rigid body dynamics, oscillations—modern topics like symmetries, phase space, nonlinear dynamics and chaos have also been introduced.

Students are urged to work out the exercises and projects given at the end of each chapter so as to obtain a thorough understanding of the subject.

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**2008 ♦ 356 pp. ♦ Paperback**  
**978-81-7371-627-0 ♦ ₹ 325.00**

### Introduction to Metallurgy, An (Second Edition)

*Cottrell, Sir Alan*

This classic textbook aims to provide undergraduates with a broad overview of metallurgy from atomic theory, thermodynamics, reaction kinetics and crystal physics, to elasticity and plasticity.

**2000 ♦ 564 pp. ♦ Paperback**  
**978-81-7371-239-5 ♦ ₹ 650.00**

### Introductory AC Circuit Theory

*Mann, K. & Russell, G.J.*

Oscillations play a very important part in modern physics, and AC theory, important as it is in its own right, provides the best introduction to the techniques common to all oscillatory problems. For this reason, this text is oriented towards the needs of science students, and also provides a first course for electrical engineering students. An elementary knowledge of field and DC circuit theory is assumed. The text provides two courses. A short course, covered in chapters 1–6, is for those students who do not wish to proceed to the operator  $\mathbf{j}$  methods treated in later chapters. The complete course provides the minimum requirements for a graduate degree in physics. The book gives a thorough grounding in the fundamental concepts as the basis of such a course.

**2000 ♦ 224 pp. ♦ Paperback**  
**978-81-7371-325-5 ♦ ₹ 225.00**

### Lasers: The New Technology of Light

*Billings, C.*

Once the stuff of science fiction legend, lasers are now employed for everything, from clocking the speed of moving traffic to performing delicate eye surgery. This book addresses the basic questions—What is a laser? What are the theories about light?—and gives the details about different types of lasers and how they are used. It also includes information about the pioneers in the field and about how lasers are employed in medicine, the military, industry, research, and communications.

**2000 ♦ 128 pp. ♦ Paperback**  
**978-81-7371-344-6 ♦ ₹ 175.00**

## PHYSICS

### **Mathematical Methods in Classical and Quantum Physics**

*Dass, Tulsi & Sharma, S.K.*

The book is intended to provide an adequate background for various theoretical physics courses, especially those in classical mechanics, electrodynamics, quantum mechanics and statistical physics. Each topic is dealt with in a generally self-contained manner and the text is interspersed with a number of solved examples and a large number of exercise problems.

**1998 ♦ 716 pp. ♦ Paperback**  
**978-81-7371-089-6 ♦ ₹ 725.00**

### **Mathematical Physics: The Basics**

*Joglekar, S.D.*

This is the first of a two-volume set which covers the basic mathematical techniques essential at the master's level in physics and chemistry. It provides the basic underlying preparation needed for research in science.

This volume deals with vectors, tensors, Cartesian coordinates, Lorentz tensors, curvilinear coordinates, linear vector spaces, linear operators, matrices, complex variables and their applications at an advanced level.

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2005 ♦ 256 pp. ♦ Paperback**  
**978-81-7371-422-1 ♦ ₹ 295.00**

### **Mathematical Physics: Advanced Topics**

*Joglekar, S.D.*

This is a companion volume to *Mathematical Physics: The Basics*. *The Basics* covered topics like vectors, tensors, Cartesian coordinates, Lorentz tensors, curvilinear coordinates, linear vector

spaces, linear operators, matrices, complex variables and their applications. This book covers more advanced topics which include: ODE, gamma and beta functions, Bessel functions, spherical harmonics and special functions, partial differential equations, generalised functions, and group theory. Together, the two volumes cover the subject of mathematical physics for a PG course in physical sciences.

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2006 ♦ 264 pp. ♦ Paperback**  
**978-81-7371-560-0 ♦ ₹ 280.00**

### **Monte Carlo Methods in Statistical Physics**

*Murthy, K.P.N.*

This book elucidates the methodology of the Monte Carlo technique starting from the very beginning, and leads the reader to a level where he or she can take it up for serious research projects. Enough background material has been provided to make the text self-contained; there are several simple examples from physics that lucidly illustrate the concept. The style of presentation is informal yet informative, and conceptual complexity has been handled in a user-friendly manner without sacrificing logical rigour. Students should find the presentation absorbing and educative.

**2004 ♦ 144 pp. ♦ Paperback**  
**978-81-7371-499-3 ♦ ₹ 225.00**

### **Optical Communication**

*Mukunda Rao, M.*

This book deals with optical electronics and communication, and is intended as a core textbook for use both at the undergraduate and postgraduate levels in engineering colleges. The author discusses a number of important aspects

like optical sources, transmission mediums, optical fibres, photodetectors, optical receivers, and modulation and remodulation systems. Each concept is systematically presented starting with the historical background and subsequent developments.

**2000 ♦ 208 pp. ♦ Paperback**  
**978-81-7371-090-2 ♦ ₹ 250.00**

### Overview of Basic Theoretical Physics, An

*Abhyankar, K.D. & Joshi, A.W.*

This book covers both the pre-quantum and post-quantum development of theoretical physics in a straightforward but fairly rigorous style. Unlike most modern physics courses which gloss over the basic physics subjects in preference to specialised topics like solid state physics, electronics, plasma physics, nanotechnology, cosmology, astrophysics and computer science, this book brings together the various branches of theoretical physics on one platform to give a panoramic view of the subject. The first four chapters of the book deal with the classical topics of Hamiltonian mechanics, theories of relativity, electromagnetic theory of radiation and thermodynamics. They are followed by chapters on atomic spectra and quantum mechanics, spectra of diatomic molecules, quantum theory of radiation, statistical mechanics, and nuclear and particle physics. Guided exercises form a unique feature of this book.

**2009 ♦ 512 pp. ♦ Paperback**  
**978-81-7371-655-3 ♦ ₹ 525.00**

### Physics of Semiconductor Devices (Revised Edition)

*Roy, D.K.*

This book is a comprehensive and up-to-date text providing a lucid perspective of the important concepts and applications of semiconductor devices. It discusses the quantum mechanical tunnel effect on the principles of quantum measurement and observations, and its application in the analysis of I-V characteristics of tunnel devices.

In this edition, the basic outline of the book and its underlying philosophy remain unchanged. The discussions on 'quantum mechanical tunnelling' have been updated. Most of the problems in the first edition have been retained and a large number of problems have been added both as solved examples and as unsolved exercises. It also contains appendices on amorphous semiconductors and the technology involved in the preparation of semiconductor devices.

**2004 ♦ 488 pp. ♦ Paperback**  
**978-81-7371-494-8 ♦ ₹ 450.00**

### QED and the Men Who Made It: Dyson, Feynman, Schwinger and Tomonaga

*Schweber, S.S.*

This book covers the development of quantum electrodynamics from its beginning to the present. It is a book full of extraordinary riches, replete with abundantly detailed accounts of the scientific reasoning of the principal contributors, with lengthy quotations from original sources, and with a frank but loving presentation of their personalities.

**2001 ♦ 764 pp. ♦ Paperback**  
**978-81-7371-365-1 ♦ ₹ 950.00**

## PHYSICS

### **QED: The Strange Theory of Light and Matter**

*Feynman, R.*

This book is a straightforward, honest explanation of a rather difficult subject—the theory of quantum electrodynamics—for a non-technical audience. It is designed to give the interested reader an appreciation for the kind of thinking that physicists have resorted to in order to explain how Nature behaves. It is a record of the lectures on quantum electrodynamics given at UCLA by Richard Feynman. If you are planning to study physics (or are already doing so), there is nothing in this book that has to be ‘unlearned’: it is a complete description, accurate in every detail, of a framework onto which more advanced concepts can be attached without modification. For those of you who have already studied physics, it is a revelation of what you were really doing when you were making all those complicated calculations.

**1999 ♦ 172 pp. ♦ Paperback**  
**978-81-7371-211-1 ♦ ₹ 210.00**

### **Quantum Field Theory: In a Nutshell**

*Zee, A.*

An esteemed researcher and acclaimed popular author takes up the challenge of providing a clear, relatively brief, and fully up-to-date introduction to one of the most vital but notoriously difficult subjects in theoretical physics. A quantum field theory text for the twenty-first century, this book makes the essential tool of modern theoretical physics available to any student who has completed a course on quantum mechanics and is eager to go on.

Stressing critical ideas and insights, Zee uses numerous examples to lead students to a true conceptual understanding of quantum field theory—what it means and what it can do. He covers an unusually diverse range of topics,

including various contemporary developments, while guiding readers through thoughtfully-designed problems. In contrast to previous texts, Zee incorporates gravity from the outset and discusses the innovative use of quantum field theory in modern condensed matter theory. Offering a remarkably accessible conceptual introduction, this text will be widely welcomed and used.

**2004 ♦ 536 pp. ♦ Paperback**  
**978-81-7371-512-9 ♦ ₹ 550.00**

### **Quantum Mechanics**

*Pradhan, Trilochan*

This book presents a novel treatment of some unusual topics of non-relativistic theory of quantum mechanics, not often covered in classic texts. Notable among these are the first quantised theory of photons and neutrons (most books give the second quantised theory); Bohr–Sommerfeld ‘action’ as differential operators with their eigenvalues  $n$  and  $l$  and their corresponding eigenfunctions; parabolic and parafermi symmetries of identical particles; Dirac’s initiation of Lagrangian formulation of quantum mechanics (also known as transformation theory) and its elaboration and completion by Feynman; topological phase of the wavefunction in Bohm–Aharonov, Aharonov–Casher and neutron interferometer experiments (examples of the Berry phase); and quantum beats such as Stark and exchange oscillations similar to  $\bar{K}_0 K_0$  and neutrino oscillations in particle physics.

*Distributed worldwide (except India) by Anshan Limited, UK*

**2008 ♦ 252 pp. ♦ Paperback**  
**978-81-7371-624-9 ♦ ₹ 375.00**

**Schrödinger's Kittens and the Search for Reality***Gribbin, J.*

In this fascinating book, *John Gribbin* presents the latest evidence about the nature of light, the phenomenon that is the key ingredient in both quantum theory and relativity. The 'kittens' of his title are the offspring of Schrödinger's famously indeterminate cat, and their adventures as they are carried to opposite ends of the universe, are a neat way of visualizing the many perplexing paradoxes of the new view of reality. All of this is of much more than just theoretical interest. The practical applications are equally astounding, as John Gribbin describes the serious possibility that quantum theory could eventually be used to develop a Star Trek-style teleportation machine, and how it has already found applications in the development of uncrackable codes.

**1999 ♦ 272 pp. ♦ Paperback**  
**978-81-7371-242-5 ♦ ₹ 295.00**

**Space and Time to Spacetime***Prasanna, A.R.*

This book is intended to familiarise readers who have some background in undergraduate / graduate physics with the subject of relativity—both special and general. It traces the history of the development of ideas associated with the subject from the late nineteenth century as expressed by Lorentz and Poincaré, leading to Einstein's paper of 1905 on special relativity, and ends with a sketch of the current status of the subject as regards to its role in physics today. The book is written in a narrative style, but for some mathematics and equations which are absolutely necessary and which have been made self-explanatory.

**2008 ♦ 212 pp. ♦ Paperback**  
**978-81-7371-629-4 ♦ ₹ 375.00**

**Statistical Mechanics: An Elementary Outline** (Revised Edition)*Lahiri, Avijith*

Compared to the previous edition where the quantum theoretic development of the subject was chosen from the very beginning, the present edition chooses the classical theory as the launching pad by introducing a number of key concepts so as to make the subject accessible to a wider section of readers. At the same time, the technical soundness of presentation has been raised to a higher level by way of using the concepts of the mixed state and the reduced state as the basic building blocks of the theory and of relating equilibrium statistical mechanics to the long-term time evolution of the reduced state. The author avoids technically rigorous, formal analysis in favour of offering a clear understanding at a semi-intuitive level. The book combines soundness of presentation with lucidity, so essential for the student aiming at a serious but enjoyable first exposure to the subject.

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 CRC Press LLC, USA, Taylor and Francis Group*

**2008 ♦ 290 pp. ♦ Paperback**  
**978-81-7371-614-0 ♦ ₹ 295.00**

**Superconductivity Today: An Elementary Introduction** (Second Edition)*Ramakrishnan, T.V. & Rao, C.N.R.*

This book explains the fascinating subject of superconductivity in an easily understandable language. It exhaustively reviews the developments in this area, covering both experimental results and present theoretical understanding, and arouses the excitement of readers and research workers by highlighting new areas of its application.

**1999 ♦ 128 pp. ♦ Paperback**  
**978-81-7371-096-4 ♦ ₹ 195.00**

## PHYSICS

### **Turning the World Inside Out and 174 Other Simple Physics Demonstrations**

*Ehrlich, Robert*

Here is a collection of physics demonstrations costing very little to produce, yet illustrating key concepts in amazingly simple and playful ways. Intended for instructors, students, and curious lay readers, these demonstrations make use of easily accessible, everyday items. Each demonstration outlines the objective, the equipment needed, the procedure and in many instances, ways for a teacher to perform the demonstration on an overhead projector. These diverse and flexible demonstrations will serve a wide range of educational levels, from middle school physical science to university physics.

**2000 ♦ 244 pp. ♦ Paperback**  
**978-81-7371-329-3 ♦ ₹ 250.00**

### **Wavelets: A Primer**

*Blatter, Christian*

The wavelet transform, with its many applications, has become a major new mathematical technique. It has stimulated research unparalleled since the invention of the Fast Fourier Transform (FFT) and opened new avenues of application in signal processing, image compression, radiology, cardiology, and many other areas. This book grew out of a short course for mathematics students at the ETH in Zurich; it provides a solid, yet accessible, mathematical foundation for those interested in learning about wavelets and pursuing the broad range of applications for which the wavelet transform has proved successful. Numerous illustrations and fully worked-out examples further enhance the value of this exemplary introduction to the field.

**2003 ♦ 216 pp. ♦ Paperback**  
**978-81-7371-449-8 ♦ ₹ 250.00**

### **Wavelets: Theory, Applications, Implementation**

*Altaisky, M.V.*

This book aims at presenting a deductive scheme to show where and when the scale-invariance of Nature meets the representations of the affine group. It includes standard trends in wavelet analysis and discrete wavelet transform, some results obtained by the author in collaboration with different people in data processing, and a number of C++ programs which can be used by physicists, economists or biologists for the analysis of the time series. The general mathematical and physical ideas of wavelets are presented without sinking into details of elaborate numeric schemes; at the same time it enables the reader to solve wavelet-related problems on the computer. The book also contains some new ideas developed by the author for non-standard applications of wavelets in quantum mechanics, quantum field theory and biology.

**2004 ♦ 164 pp. ♦ Paperback**  
**978-81-7371-503-7 ♦ ₹ 250.00**

## ASTROPHYSICS

**Astrophysics of the Solar System***Abhyankar, K.D.*

This book attempts to broadly deal with the mechanics and dynamics of the Solar System with additional emphasis on celestial mechanics. Important planetary laws and theories like the geocentric theory, Kepler's laws, Newton's law of gravitation, the catastrophic theories of Moulton, Russell and Schmidt, and the nebular hypothesis of Kant and Laplace are clearly explained. The book also deals with space dynamics and rocket propulsion, solar activities, lunar studies, small bodies and extraterrestrial life.

1999 ♦ 272 pp. ♦ Paperback  
978-81-7371-124-4 ♦ ₹ 450.00

**Astrophysics: Stars and Galaxies***Abhyankar, K.D.*

This book introduces the subject of astrophysics to honours and postgraduate students of physics, without the necessity of their being familiar with all the practical details of modern astronomical techniques of observation and deduction of data. The emphasis is on showing how an application of the commonly known laws of physics gives us important information about the properties of celestial objects and phenomena.

2001 ♦ 576 pp. ♦ Paperback  
978-81-7371-381-1 ♦ ₹ 675.00

**Big and the Small, The Vol. II  
From the Microcosm to the Macrocosm:**

The Fascinating Link between Particle  
Physics and Cosmology

The *Big and the Small* is a two-volume set in the series *Vignettes in Physics*. It depicts the story of high-energy physics and man's attempt at reconstructing Creation. The narration, laced with glimpses of the history of events and people, makes for riveting reading; the reader is drawn irresistibly to experience the thrill of finding plausible theories—theories that sometimes they seem so audacious that challenge the very limits of human imagination.

While the first volume, *Journey into the Microcosm: The Story of Elementary Particles*, deals with the small, i.e., the world of elementary particles, the second volume, *From the Microcosm to the Macrocosm: The Fascinating Link between Particle Physics and Cosmology*, takes the reader to the other extreme, the big, or the cosmos, and then wraps up the story by briefly describing the fascinating connecting link between the two. In a sense, the small and the big are like the two strands of the DNA; in this case, they form the strands of the DNA of the cosmos itself.

2006 ♦ 232 pp. ♦ Paperback  
978-81-7371-574-7 ♦ ₹ 250.00

**Birth of Time, The: How we Measured the  
Age of the Universe***Gribbin, J.*

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**Eclipse: A Celestial Shadow Play***Shylaja, B.S. & Madhusudan, H.R.*

This book traces the history of eclipses from ancient records, mythology and folklore, right up to the modern-day, state-of-the-art astronomical research. It also deals with other types of

## PHYSICS

eclipses—the transits, the occultations and eclipses in binary stars, thus giving the reader a comprehensive overview of this extraordinary phenomenon.

**1999 ♦ 160 pp. ♦ Paperback**  
**978-81-7371-237-1 ♦ ₹ 250.00**

### Elements of Cosmology

*Narlikar, J.V.*

This book is based on lectures given by the author at a number of universities with the aim of introducing Cosmology to students and teachers at the graduate level. Here, cosmology is explained within the framework of Newtonian gravity and mechanics thereby making it readily understandable to students of Physics and Mathematics at the undergraduate level. The description is up-to-date and includes cosmological models, their physical properties and observational tests.

**1996 • 104 pp. • Paperback**  
**978-81-7371-043-8 • Rs. 150.00**

### Indian Astronomy: An Introduction

*Balachandra Rao, S.*

This, the first comprehensive book of its kind on Indian Astronomy, is a survey of the development of astronomy in India from the Vedic times to the present day. It aims to create an awareness about Indian Astronomy among interested students and general readers alike. The systematically-planned contents and a lucid style enable the reader to be fairly proficient in the concepts, techniques and computational procedures developed by great Indian astronomers like Aryabhata, Brahmagupta and Bhaskara II, over more than a millennium and a half. It provides, for the first time, computer programs for the computation of true planetary

positions, lunar and solar eclipses, and contains a detailed and very useful bibliography.

**1999 ♦ 124 pp. ♦ Paperback**  
**978-81-7371-205-0 ♦ Print on demand**

### What are the Stars? (First Edition)

*Srinivasan, G.*

**Series:** The Present Revolution in Astronomy

See Page 17  
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### Can Stars Find Peace? (First Edition)

*Srinivasan, G.*

**Series:** The Present Revolution in Astronomy

See Page 17  
.....

## MATERIALS SCIENCE

### Basic Course in Crystallography, A

*Tareen, J.A.K. & Kutty, T.R.N.*

Crystallography is a multidisciplinary subject, forming a part of courses in materials science, chemistry, condensed matter physics, metallurgy, ceramics, geology, mineralogy, and some disciplines in engineering. The most important feature of this book is the logical development of the subject, the crucial key word being symmetry in point groups as well as the translational distribution of molecules to generate the long-range order. A large number of illustrations complement the lucid narration. Worked examples and exercises are included in most chapters.

**2000 ♦ 176 pp. ♦ Paperback**  
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SERIES IN METALLURGY AND  
MATERIALS SCIENCE**

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The series in Metallurgy and Materials Science has been initiated during the Diamond Jubilee of the Indian Institute of Metals (IIM). In the last decade the progress in the study and development of metallurgy and materials science has been rapid and extensive, giving us a whole new array of materials, with a wide range of applications, and a variety of techniques for both processing and characterizing them. With the help of an expert editorial panel of international and national scientists, the series aims to make this information available to a wide spectrum of readers through textbooks, monographs on select topics by experts in the field, and proceedings of select international conferences organized by the IIM.

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**FORTHCOMING**

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**Advances in Manufacturing Technology**

*Editors: Baldev Raj, Jayakumar T., Sivaprasad, P. V., Rao, B. P. C., Sasikala, G.*

This book is part of the Universities Press–IIM Series in Metallurgy and Materials Science. It covers a broad spectrum of topics spanning the entire gamut of manufacturing—from the development of technologies, to realisation of products, their inspection and enterprise. It is organised thematically into four sections: trends in manufacturing technology, modelling and simulation, non-destructive evaluation and product development and technology enterprise. It includes 40 papers from world-renowned experts.

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**Advances in Materials Characterization**

*Amarendra, G., Baldev Raj & Manghnani, M.H. (Eds.)*

Materials Characterization is an important area of fundamental and technological interest. A variety of experimental techniques have been developed over the years for characterizing the physical and chemical properties of materials. This book provides an overview of the recent advances in this area in terms of providing an in-depth review of the latest techniques. It comprises of review articles written by experts in these areas, providing an introduction, overview of the technique as well as demonstration of their applications to selected problems.

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2006 ♦ 228 pp. ♦ Hardback  
978-81-7371-568-6 ♦ Print on demand**

**Advances in Stainless Steels**

*Baldev Raj & et al (Eds.)*

*Advances in Stainless Steels* is the fourth book in the IIM–Universities Press book series on Metallurgy and Materials Science. The book focusses on various facets—processing, component design, properties, fabrication and applications—of the wonder alloy: stainless steel. Stainless steels are a class of versatile alloys, which can be tailored to exhibit a wide range of engineering properties by alloy design and controlled thermomechanical treatments to meet demanding service conditions. Stainless steel production in India is presently about 1.8 million tonnes and accounts for nearly 7% of global tonnage produced. This is likely to show an enormous increase in the near future.

This book covers a broad spectrum of topics spanning the entire life cycle of stainless steel—from alloy design and characterization

## PHYSICS

to engineering design, fabrication, mechanical properties, corrosion, quality assurance of components, in-service performance assessment, life prediction and failure analysis of materials and components. The contents provide useful feedback for further developments aimed at effective utilization of this class of materials. The book comprises articles that bring out contemporary developments in stainless steels and is thematically classified into the following sections.

- Component design, modelling and structural integrity
- Manufacturing technology
- Property evaluation
- Alloy development and applications
- Non-destructive evaluation methods
- Corrosion and surface modification

The articles are of high relevance and interest to manufacturers, fabricators, researchers, designers, suppliers and end users of stainless steel, and serve as a valuable source for everyday reference and also as a guide for providing solutions for challenges connected with alloy design, material selection, melting, processing, fabrication, metallurgy and applications.

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2010 ♦ 692 pp. ♦ Hardback**  
**978-81-7371-696-6 ♦ ₹ 1995.00**

### Frontiers in the Design of Materials

*Baldev Raj, et al. (Eds.)*

This book is an ensemble of a unique collection of advanced topics in the field of alloy design and development of advanced materials. The topics cover a wide range from multiscale modeling for alloy design, structural materials to nano materials, quasicrystals, amorphous metallic glasses, design of coatings, carbon based materials, metal foams as well as component structure integrity. The

book has an optimum blend of subjects of interest to physicists, materials scientists, engineers, industry as well as researchers and beginners. There has been significant progress not only in the development of advanced materials but also in understanding their constitution and behavior with the help of modeling. This book presents a comprehensive view of the latest developments and experimental work on both these fronts and attempts to give direction to future work.

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2006 ♦ 392 pp. ♦ Hardback**  
**978-81-7371-567-9 ♦ Print on demand**

### Perspectives in Materials Characterization

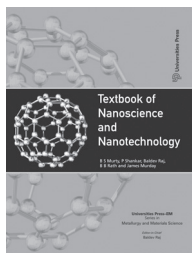
*Amarendra, G., Baldev Raj & Manghnani, M.H. (Eds.)*

Materials characterization is an important area of fundamental and technological interest. Numerous experimental techniques for determining the physical and chemical properties of materials have developed over the years. Perspectives in Materials Characterization is the companion volume to Advances in Materials Characterization published in 2007. Both volumes comprise of review articles written by experts, providing an introduction and overview of individual characterization techniques, as well as a demonstration of their application to selected problems.

For the first time books providing such a collection of advanced techniques are being made available and will be of use to postgraduates, researchers, and faculty in the field of metallurgy and materials science.

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2009 ♦ 192 pp. ♦ Hardback**  
**978-81-7371-649-2 ♦ ₹ 675.00**

**NEW****Textbook of Nanoscience and Nanotechnology***Murty, B S, Shankar, P, Raj, Baldev, Rath, B B, Murday, James*

This book is the second textbook in the Universities Press–IIM Series in Metallurgy and Materials Science. It is a book for beginners in the field of nanoscience and nanotechnology and is suitable for both undergraduate and postgraduate students who are taking a course in nanoscience and nanotechnology. It provides an introduction to the terminology and historical perspectives of this domain of science, discusses the effects of size and the unique and widely differing properties of nanomaterials in comparison to bulk materials, and describes the advances in methods of synthesis, and consolidation and characterization techniques. The applications of nanoscience and technology and emerging materials and technologies are also presented in the book.

- Current data and research findings, with special emphasis on Indian sources, included in every chapter
- Exercises and problems at the end of each chapter
- Glossary and Index

**Contents:** The big world of nanomaterials ❖ Unique properties of nanomaterials ❖ Synthesis routes ❖ Applications of nanomaterials ❖ Tools to characterize nanomaterials ❖ Nanostructured materials with high application potential ❖ Concerns and challenges of nanotechnology

**2011 ♦ 256 pp. ♦ Paperback**  
**978-81-7371-738-3 ♦ ₹ 325.00**

**POPULAR READING****Birth of Time, The: How We Measured the Age of the Universe***Gribbin, J.*

See page 33  
 .....

**Nine Crazy Ideas in Science***Ehrlich, Robert*

AIDS is not caused by HIV. Coal and oil are not fossil fuels. Radiation exposure is good for you. These ideas make headlines, but most educated people scoff at them. Yet some of science's most important concepts from gravity to evolution have surfaced from the pool of crazy ideas. Here, a well-known physicist with an affinity for odd ideas applies his open mind to nine controversial propositions on topical subjects. Anyone interested in unorthodox ideas will enjoy this book. And, as a fun way of learning how to think like a scientist, it has enormous educational value.

**2005 ♦ 256 pp. ♦ Paperback**  
**978-81-7371-524-2 ♦ ₹ 295.00**

## PHYSICS

### Shaping of Indian Science, The

*ISCA-Indian Science Congress Association  
Presidential Addresses*

These are a compendium of the speeches of the Presidents of the Indian Science Congress Association (ISCA) from 1914–2003. Through the years, these Presidents have inspired the Congress by their speeches—some of them visionary, some impassioned in their plea for Science, but all of them with a message that Science must be used for the good of the human race. The Presidents have been eminent personalities in the world of Science and have left their mark on the course of Science in India. This series was inspired by the belief that these luminaries deserved greater coverage in a reference source devoted exclusively to providing their messages and brief biographical sketches, in the hope that they will inspire a wider audience to take up the noble pursuit of Science.

#### Volume 1

2003 ♦ 592 pp. ♦ Hardback  
978-81-7371-432-0 ♦ Print on demand  
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#### Volume 2

2003 ♦ 704 pp. ♦ Hardback  
978-81-7371-433-7 ♦ Print on demand  
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#### Volume 3

2003 ♦ 788 pp. ♦ Hardback  
978-81-7371-434-4 ♦ Print on demand  
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#### Volume 4:

**2010 ♦ 111 pp. ♦ Paperback**  
**978-81-7371-708-6 ♦ Print on demand**

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### VIGNETTES IN PHYSICS

*(A SERIES BY VENKATARAMAN, G.)*

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The series is intended for those interested in science and who would like to get a broad perspective without being loaded with a lot of technical details. Though directed at the young, the readership can be of all ages and tastes, provided there is a basic interest in science.

Written in the spirit of the Feynman lectures, the series (comprising 14 books on diverse topics in physics) is intended to arouse curiosity and inspire the young student towards a career in science. A large number of anecdotes, vividly describing some of the most breathtaking moments of discovery, are included.

#### At the Speed of Light

This book is about the Theory of Relativity. The story of Relativity is, in a sense, the story of one man—Albert Einstein. The book deals only with the Special Theory, which you will find is not very difficult to understand.

**1992 ♦ 136 pp. ♦ Paperback**  
**978-81-7371-009-4 ♦ ₹ 195.00**

#### Bhabha and His Magnificent Obsessions

This book is about the remarkable scientist Homi Jehangir Bhabha who, at the age of eighteen, went to Cambridge to study Physics and started his research career there. In 1939, when Bhabha came to India on a short vacation, he was forced to stay on as the Second World War broke out. This was, of course, a blessing for the country as he later steered the country's scientific destiny. The book records Bhabha's contributions which were in many dimensions and were not just purely scientific.

**1994 ♦ 222 pp. ♦ Paperback**  
**978-81-7371-007-0 ♦ ₹ 250.00**

**Big and The Small, The Vol. I  
Journey into the Microcosm:  
The Story of Elementary Particles**

By probing deeper and deeper into the innermost recesses of the atom, physicists have been able to obtain not only a better understanding of the vast cosmos but indeed of the origin of the cosmos itself. This book is about the greatest adventure in human history—man's attempt to reconstruct Creation by a combination of the most daring flights of imagination and mind-boggling experiments. It is, in short, the study of high-energy physics which may aptly be called the second Creation, or man's attempt to reconstruct Creation.

2001 ♦ 284 pp. ♦ Paperback  
978-81-7371-227-2 ♦ ₹ 275.00

**Big and the Small, The Vol. II  
From the Microcosm to the Macrocosm:  
The Fascinating Link between Particle  
Physics and Cosmology**

The *Big and the Small* is a two-volume set in the series *Vignettes in Physics*. It depicts the story of high-energy physics and man's attempt at reconstructing Creation. The narration, laced with glimpses of the history of events and people, makes for riveting reading; the reader is drawn irresistibly to experience the thrill of finding plausible theories—theories that sometimes they seem so audacious that challenge the very limits of human imagination.

While the first volume, *Journey into the Microcosm: The Story of Elementary Particles*, deals with the small, i.e., the world of elementary particles, the second volume, *From the Microcosm to the Macrocosm: The Fascinating Link between Particle Physics and Cosmology*, takes the reader to the other extreme, the big, or the cosmos, and then wraps up the story by briefly describing the fascinating connecting link between the two. In a sense, the small and the big

are like the two strands of the DNA; in this case, they form the strands of the DNA of the cosmos itself.

2006 ♦ 232 pp. ♦ Paperback  
978-81-7371-574-7 ♦ ₹ 250.00

**Bose and His Statistics**

This book describes a monumental discovery made by Satyendranath Bose. It also helps the reader take a step closer in understanding Bose—the scientist—and describes the events that surround this exciting discovery.

1992 ♦ 136 pp. ♦ Paperback  
978-81-7371-036-0 ♦ ₹ 195.00

**Chandrasekhar and His Limit**

It is a heartwarming and very inspiring story about Subrahmanyam Chandrasekhar, the most distinguished mathematical physicist India has produced. In a long and remarkable career, Chandrasekhar has done many outstanding things but this book concentrates mostly on one of them, namely, the discovery of the Chandrasekhar Limit.

1992 ♦ 144 pp. ♦ Paperback  
978-81-7371-035-3 ♦ ₹ 195.00

**Hot Story, A**

This book attempts to explain the terms heat and temperature. But instead of relying mainly on technical explanations that are highly mathematical, the author takes a look at what really lies behind these phenomena.

1992 ♦ 140 pp. ♦ Paperback  
978-81-7371-010-0 ♦ ₹ 195.00

## PHYSICS

### Many Phases of Matter, The

This book is about phase transitions. It seeks to unfold the universal connecting link between diverse physical phenomena, all involving a change of state.

1991 ♦ 104 pp. ♦ Paperback  
978-81-7371-034-6 ♦ ₹ 195.00

### Quantum Revolution I—The Breakthrough

The discovery of quantum mechanics is often hailed as the greatest revolution in human thought. This volume, the first in a series of three, seeks to capture the drama of this supreme achievement.

1993 ♦ 200 pp. ♦ Paperback  
978-81-7371-002-5 ♦ ₹ 195.00

### Quantum Revolution II— QED: The Jewel of Physics

This book describes how the battle of infinities was fought and, more importantly, about a new approach to quantum mechanics. It deals with the birth of quantum electrodynamics, a theory of incredible and unmatched precision and the most perfect physical theory known to man.

1993 ♦ 144 pp. ♦ Paperback  
978-81-7371-003-2 ♦ ₹ 195.00

### Quantum Revolution III—What is Reality?

This concluding part of the trilogy on quantum mechanics deals with the fascinating question: Is there really a world out there or does it exist because we see it?

1993 ♦ 140 pp. ♦ Paperback  
978-81-7371-004-9 ♦ ₹ 195.00

### Raman and His Effect

This book deals with the famous Scattering Effect discovered by Sir C.V. Raman. It gives us deep insights into the character of this famous scientist and vividly describes the circumstances surrounding the discovery.

1995 ♦ 108 pp. ♦ Paperback  
978-81-7371-008-7 ♦ ₹ 195.00

### Saha and His Formula

A great leap forward in unraveling the mysteries of the Sun occurred way back in 1920 when Meghnad Saha made an important discovery that paved the way for a systematic study of stellar atmospheres in general. This book is about that great discovery and the man who made it.

1995 ♦ 206 pp. ♦ Paperback  
978-81-7371-017-9 ♦ ₹ 195.00

### Why are Things the Way They Are?

This book uses basic calculations to help the student answer questions such as, 'Why is the size of an atom roughly 10<sup>-8</sup> cm and not 1 cm?' or 'Why is the height of Mount Everest 10 km and not 100 km?' In short, 'Why are things the way they are?' This book is an introduction to some methods of making rapid estimates, and shows how estimated answers can be made in just a few steps.

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978-81-7371-033-9 ♦ ₹ 195.00

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**THE PRESENT REVOLUTION  
IN ASTRONOMY**

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This series is intended to convey the excitement of contemporary astronomy to readers from diverse backgrounds in science and to fuel their imagination about the wonders and mysteries of the cosmos through a view of the presently unfolding revolution in the field.

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**NEW**

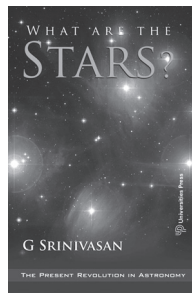
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**What are the Stars? (First Edition)**

*Srinivasan, G.*



The outstanding question in astronomy at the turn of the twentieth century was: what are the stars and why are they as they are? In this volume, the story of how the answer to this fundamental question was unravelled is narrated in an informal style, with emphasis on the underlying physics. It also gives an overview of the topics that will be covered in later volumes—white dwarfs, neutron stars, black holes, galaxies, and the universe at large.

**Contents:** Foreword \* Preface \* The Present Revolution in Astronomy: An Overview \* Chapter 1: What Are the Stars?; Chapter 2: Stars as Globes of Gas; Chapter 3: Eddington's Theory of the Stars; Chapter 4: Why Are the Stars as They Are?; Chapter 5: Energy Generation in the Stars; Chapter 6: Sounds of the Sun; Chapter

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7: The Smoking Gun is Finally Found \* Epilogue \* Suggested Reading \* Index

2011 ♦ 268 pp. ♦ Paperback

978-81-7371-741-3 ♦ ₹ 270.00

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**NEW**

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**Can Stars Find Peace? (First Edition)**

*Srinivasan, G.*



What will happen to a star when its supply of nuclear energy is exhausted? Will it collapse to a point and disappear from this Universe? Or, is there a new twist to the story?

In this book, the second volume of the series 'The Present Revolution in Astronomy' authored by G Srinivasan, the story of the life history of the stars is narrated in a lucid manner, with the necessary physics background developed in a systematic fashion. The first part deals with the great developments of the 1930s. This includes the great discovery by Chandrasekhar and the subsequent prediction of supernovae, neutron stars and black holes. The second part of the book is devoted to a discussion of the modern perspective of stellar evolution.

**Contents:** Foreword \* Preface \* \*Part 1: A Historical Perspective—Chapter 1: What Are the Stars?; Chapter 2: Stars in Their Youth; Chapter 3: White Dwarf Stars; Chapter 4: The Principles of Statistical Mechanics; Chapter 5: Fermi-Dirac Distribution; Chapter 6: Quantum Stars; Chapter 7: The Chandrasekhar Limit;

## PHYSICS

Chapter 8: The Absurd Behaviour of Stars: Not All Stars Will Have Energy to Cool; Chapter 9: Guest Stars; Chapter 10: Supernovae, Neutron Stars and Black Holes; A Profile of Chandra \* Part II: The Life History of Stars—A Modern Perspective—Chapter 11: To Burn or Not To Burn; Chapter 12: What Does the Future Hold for the Sun?; Chapter 13: Life History of Intermediate Mass Stars; Chapter 14: Diamonds in the Sky; Chapter 15: Exploding Stars \* Epilogue \* Suggested Reading \* Index

**2011 ♦ 268 pp. ♦ Paperback**  
**978-81-7371-742-0 ♦ ₹ 270.00**

## SPACE SCIENCE TECHNOLOGY

### 50 Years of Space: A Global Perspective

*Manoranjan Rao, P.V. (Ed.)*

On October 4, 1957 the Soviet Union launched the world's first man-made satellite Sputnik-1, opening the doors to a new cosmic era. To commemorate the 50th anniversary of this momentous occasion *50 Years of Space: A Global Perspective* gathers in a single volume, brief histories of all the major space agencies of the world written by people of impeccable credentials.

In the past 50 years, many countries have found their own, unique paths to orbit. The objectives were multi-dimensional – an opportunity for investigating and understanding outer space; a means of showcasing technological superiority; a means to solve social problems.

The essays assembled in this book illustrate the many different solutions that each country or organisation has developed. But today, the countries have realised that to move forward, international cooperation is necessary. This book affords us a means to look backward, learn from our failures, and surge forward in a direction which will benefit all humanity.

**2008 ♦ 316 pp. ♦ Hardback**  
**978-81-7371-600-3 ♦ Print on demand**

### Concepts in Space Science

*Daniel, R.R. (Ed.)*

This book is the outcome of a deep concern, shared internationally, to bring to the attention of enquiring minds, particularly high-school and college students, the stunning discoveries made over the last five decades in space science and the amazing opportunities and challenges it holds for the future. Written in an easy style by a team of international experts, each chapter is structured to make the reader aware of the basic concepts in that particular field, provide examples of the innovative and creative ideas involved, the most remarkable results obtained at the cutting edge of science, and the profound challenges and unequalled opportunities for the future in space research.

**2002 ♦ 400 pp. ♦ Paperback**  
**978-81-7371-410-8 ♦ ₹ 425.00**

### Fundamentals of Remote Sensing

(Second Edition)

*Joseph, George*

This book presents the fundamental concepts covering various stages of remote sensing from data collection to end utilisation, so that it can be appreciated irrespective of the discipline in which the reader has graduated. The physical principles on which remote sensing are based has been explained without getting into complicated mathematical equations. The second edition has major additions in Chapter 11, dealing with the applications of remote sensing. Four more themes have been added. Some basic concepts of advanced data classification techniques have been added in Chapter 10. The latest advancement in IRS series has also been reflected.

In order to benefit those who are familiarising themselves with the subject for the first time, a list of acronyms and abbreviations has been added.

**2005 ♦ 488 pp. ♦ Paperback**  
**978-81-7371-535-8 ♦ ₹ 450.00**

### **Remote Sensing and Its Application**

*Narayan L R A*

This compilation of articles published in *THE HINDU* provides a clear understanding of Remote Sensing, the amazing technology which is opening up new vistas for the mapping, management, and monitoring of our natural resources. Richly illustrated and easy to read, the book will be of interest to students, teachers, scientists and non-specialists.

**1999 ♦ 236 pp. ♦ Paperback**  
**978-81-7371-268-5 ♦ ₹ 375.00**

# CHEMISTRY

## Analytical Chemistry

*Krupadanam, G.L.D., et al.*

This book deals with the principles and applications of analytical chemistry, and is useful for B.Sc. chemistry students and those working in analytical research laboratories of drug, pesticide and other chemical industries. The topics discussed include the procedures to be followed in analytical work, solvent extraction as a technique in the isolation and purification of compounds, and chromatographic techniques (TLC, column, paper, ion-exchange, and HPLC) that are used for identification, purification, quantitative analysis and for monitoring the progress of reactions.

**2001 ♦ 216 pp. ♦ Paperback**  
**978-81-7371-385-9 ♦ ₹ 225.00**

## Basic Organometallic Chemistry: Concepts, Syntheses and Applications

*Gupta, B. D. & Elias, Anil J.*

The objective of this book is to inculcate interest in understanding transition-metal organometallic chemistry. No existing book has covered such a large variety of topics in such detail. The material is up to date and the students or instructors may not be required to look for extra material unless they wish to delve deeper into the subject. *Basic Organometallic Chemistry: Concepts, Syntheses and Applications* can be used by M.Sc chemistry students in particular and by researchers in many areas of chemistry to understand the fundamentals of organometallic chemistry.

The chapters are written using very simple language. The text is lavishly complemented with figures, equations and schemes for easy comprehension. There are a large number of problems and exercises at the end of each

chapter with detailed solutions. Several carefully selected and recent references lead the reader to further material. 'Boxed' matter on related material make the text more interesting. Short questions to each chapter provided in the appendix.

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2010 ♦ 544 pp. ♦ Paperback**  
**978-81-7371-709-3 ♦ ₹ 695.00**

## Chemical and Electrochemical Energy Systems

*Narayan, R. & Viswanathan, B.*

This book addresses the problem of production of energy through chemical energy conversion. It deals with the importance of the need to explore new sources of energy and methods of storage. It includes all forms of chemical energy conversion and deals clearly with the production of energy from petroleum fuel and carbon.

**1998 ♦ 272 pp. ♦ Paperback**  
**978-81-7371-069-8 ♦ ₹ 325.00**

## Chemical Process Calculations

*Asokan, K.*

A range of materials like fuels, fertilisers, processed foods, life-saving pharmaceuticals and filtered clean water are being produced today. Several stages and processes take place during their production. Different materials or chemicals are added or removed in each step, and energy in the form of heat is also gained or lost. A chemical engineer needs to have a thorough understanding of how much of different materials are needed for the required output, as well as

Prices are subject to change without notice

the energy balance of the processes involved. A course in chemical process calculations will help gain such an understanding.

The book provides a simple treatment of the subject matter. The fundamental principles are explained through 173 worked examples. Exercise problems (154 in numbers) with answers are also given for practice.

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2007 ♦ 264 pp. ♦ Paperback**  
**978-81-7371-594-5 ♦ ₹ 325.00**

## ══════ FORTHCOMING ══════

### **Chemistry of Natural Products: A Laboratory Handbook** (Second Edition)

*Krishnaswamy, N. R.*

This book is a companion to the author's book *Chemistry of Natural Products: A Unified Approach*, Second edition. It contains a judicious mix of both spectroscopic and chemical methods of characterisation of natural products. The main objective is to provide students with experimental details for the successful isolation of different types of natural products. All the experiments have been successfully class-tested. The first edition of the handbook was first published in 2003. Several experimental procedures described in the book are unique as they are not readily available in other books on practical organic chemistry. Additional experiments have been added to the revised edition. The chemistry of natural products can be fully appreciated and enjoyed only by combining theoretical knowledge with experimentation. Students of the subject should, therefore, have ready access to a book which provides procedural details of the varied aspects of naturally organic compounds.

### **Chemistry of Natural Products: A Unified Approach** (Second Edition)

*Krishnaswamy, N. R.*

*Chemistry of Natural Products: A Unified Approach*, provides a planned account of the common features—structural and stereochemical—of naturally occurring organic compounds. This is the only approach to bring about effective understanding of their chemistry. A variety of examples have been given to illustrate varied aspects so that the range of structure and behaviour exhibited by these compounds is retained within the set framework. The increasing application of physical (spectroscopic) methods like IR, NMR, CD, ORD, MS, High Resolution Mass Spectroscopy—using which, structural determinations are often done with very small or even microscopic quantities of the substance—is emphasised, without undermining the importance of 'classical' chemical methods. The section on problem solving helps to develop an analytical and critical evaluation of the data.

The second edition reflects the significant and important developments that have taken place since the publication of the first edition, particularly with regard to the biological aspects of natural products.

**Special features:**

- Unified approach: Discusses all classes of compounds
- Unique approach: Discusses common structural and stereochemical features of naturally occurring organic compounds
- Revised Introduction for all chapters
- Examples: About 100 examples across the book and 6 new per chapter
- Correlation with spectral data

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2010 ♦ 432 pp. ♦ Paperback**  
**978-81-7371-677-5 ♦ ₹ 525.00**

**Collection of Interesting General Chemistry Experiments (Revised Edition)***Elias, Anil J.*

This novel collection of twenty-two experiments, covering all areas of practical chemistry, has been introduced for the basic chemistry courses of Indian Institute of Technologies (IITs) and similar courses at other institutions where chemistry is taught at the undergraduate level. The experiments are modern and interesting and can be carried out with the existing facilities in any chemistry undergraduate laboratory. The emphasis is on experiments, which involve chemicals and products encountered in the day-to-day life of an average student. Each experiment also includes a write up on the theoretical background required to understand the chemistry behind the experiment and to enjoy the experience of doing it in the laboratory.

The new experiments included in this revised edition cover the area of electrochemistry, an important component of undergraduate practical chemistry.

**2008 ♦ 160 pp. ♦ Paperback**  
**978-81-7371-599-0 ♦ ₹ 175.00**

**College Practical Chemistry***Ahluwalia, V. K., Dhingra, S. & Gulati, Adarsh*

This book has been written keeping in view the requirements of B.Sc. students of all universities in India. With the vast teaching experience of the authors, the problems and difficulties faced by the students have been identified and solutions/suggestions given. The book contains three sections—inorganic chemistry, organic chemistry and physical chemistry. The authors have endeavoured to present the basic theory and procedure for each experiment to make the students' work in the laboratory more methodical.

**2005 ♦ 524 pp. ♦ Paperback**  
**978-81-7371-506-8 ♦ ₹ 395.00**

**Comprehensive Practical Organic Chemistry: Preparations and Quantitative Analysis***Ahluwalia, V.K. & Aggarwal, R.*

In this book on quantitative analysis and reagent preparation, the authors adopt a novel approach—all the preparations have been given in the form of organic reactions in alphabetical order, with their respective reaction mechanisms. The procedures of some preparations are also discussed. Estimation of various compounds and functional groups is also included. A complete chapter is devoted to chromatography, with exercises.

**2000 ♦ 304 pp. ♦ Paperback**  
**978-81-7371-475-7 ♦ ₹ 275.00**

**Comprehensive Practical Organic Chemistry: Qualitative Analysis***Ahluwalia, V. K. & Dhingra, S.*

This manual for practical qualitative analysis covers the use of spectroscopic methods for identification of various functional groups. Comprehensive tables giving methods for the systematic identification of pure specimens, separation of mixtures and compounds, and procedures for the preparation of derivatives are some of the salient features of the book.

**2000 ♦ 304 pp. ♦ Paperback**  
**978-81-7371-428-3 ♦ ₹ 275.00**

**Drugs***Krupadanam, G. L. D., et al.*

Drugs have played a central role in the progress of human civilisation. There are many important stages before a compound is used as a drug to treat a disease. The can be first stage is drug discovery; the second stage is the manufacture; and the third stage is the formulation of the drug in the form of tablets, capsules, injections and solutions. Some drugs like penicillin have been discovered quite accidentally, while some plant-derived drugs have been known to man since very early times; for example, quinine, ephedrine, cocaine, and morphine. This book deals with the historical aspects of the development and use of drugs, vitamins, hormones; their classification, synthesis and formulation; and the general principles of drug actions. The pharmacokinetics, the interaction of drugs in the targeted receptor, and mode of drug synthesis is explained in detail.

**2001 ♦ 168 pp. ♦ Paperback**  
**978-81-7371-386-6 ♦ ₹ 195.00**

**Electronic Absorption Spectroscopy and Related Techniques***Sathyannarayana, D. N.*

This book provides a conceptual and experimental basis for the interpretation of electronic absorption spectroscopy and related techniques. The basic theories, instrumentation and interpretation of the spectra of organic and coordination compounds for structural studies are presented step-by-step, in an easily understandable style. Related topics of emission spectroscopes are covered as well.

**2001 ♦ 544 pp. ♦ Paperback**  
**978-81-7371-371-2 ♦ ₹ 650.00**

**Fuel Cells: Principles and Applications***Viswanathan, B & Scibioh, Aulice M*

This book discusses the scientific principles and technology of various types of fuel cells—PEM (polymer membrane fuel cell), PAFC (phosphoric acid fuel cell), MCFC (molten carbonate fuel cell), SOFC (solid oxide fuel cell) and DMFC (direct methanol fuel cells). Fuel cells are power-generating devices with a wide range of applications including stationary power generation (MW), portable power generation (kW) and transportation (kW). The key advantages of the fuel cell are high efficiency, the lack of emissions, modularity, fuel flexibility, and high power density. The only emission from fuel cells is water when hydrogen is fed to the fuel cell. For these reasons, research in the area of fuel cells is of great significance. This book is a comprehensive work on the state-of-the art findings in this area.

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2006 ♦ 504 pp. ♦ Paperback**  
**978-81-7371-557-0 ♦ ₹ 625.00**

**Fuels and Combustion** (Third Edition)*Sarkar, Samir*

*Fuels and Combustion, Third edition* is a systematic and comprehensive work on a subject that forms an integral part of the undergraduate degree courses in chemical, mechanical, metallurgical and aeronautical engineering. While emphasising the fundamental principles, the book provides a balanced treatment of energy resources, processing of fuels, fundamentals of combustion and combustion appliances. A special feature of the book is that the topics have been dealt with in the Indian context. The third edition of the book has a completely new introduction, layout and design; new statistics have been added to provide up-to-date information.

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2009 ♦ 400 pp. ♦ Paperback**  
**978-81-7371-669-0 ♦ ₹ 395.00**

## ══════ FORTHCOMING ══════

**Functional Materials: A Chemist's Perspective***Pillai, Vijayamohan and Parthasarathy, Meera*

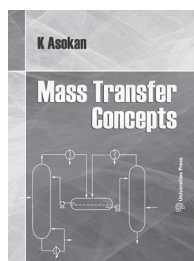
When we look at the evolution of materials from a historical perspective, it is very clear that materials are becoming more and more functional with time. This book looks at the various aspects of functional materials, including the basic concepts, line of development, their main characteristics, and applications using selected examples taken from the amazing variety of functional materials developed during the last two decades. The preparation and characterization of some of these functional materials are explained from a chemist's point of view since the use of the skill and resources of a

synthetic chemist is an essential prerequisite for developing many of these materials. Although research in these areas is a daunting challenge involving multidisciplinary teams of physicists, chemists, engineers and biologists, the role of chemistry has not been emphasized in many available books on advanced materials. This book attempts to fill this gap by building a coherent framework with emphasis on the chemistry of this selected class of materials. Many emerging applications of functional materials in the area of energy storage, polymer electronics, chemical sensors, nanobiotechnology and medicine will be highlighted mentioning their limitations and futuristic promise.

**Fundamentals of Crystal Chemistry***Tareen, J. A. K. & Kutty, T. R. N.*

Crystals have fascinated man from time immemorial due to their brilliant colours and symmetry. Early references to the scientific observation of crystal symmetry date back to Johannes Kepler in 1611, Steno Florence in 1869, etc. Today, a study of two fundamental aspects form the basis for an understanding of the chemistry of crystals—the nature of chemical bonds between atoms and molecules, and the geometry of closely-packed atoms and molecules simplistically assumed to be hard spheres. This monograph is intended to introduce the student of crystallography to the fundamental principles of crystal chemistry.

**2000 ♦ 56 pp. ♦ Paperback**  
**978-81-7371-297-5 ♦ ₹ 150.00**

**Mass Transfer Concepts***Asokan, K.*

- Each chapter starts with an introduction
- Various operations and their fundamental principles are explained
- Text is complemented by 153 worked examples
- 169 exercise problems are provided with solutions

Mass transfer involves the use of various operations to separate a mixture into its individual components—a frequent requirement in chemical industries. The differences in the physical properties of the components to be separated—such as the vapour pressure, solubility or diffusivity—are utilised to transfer material from one homogenous phase to another. Techniques such as gas absorption, distillation, leaching, extraction, crystallisation, humidification, drying, adsorption and membrane based separation processes involve mass transfer and can be carried out due to the existence of a concentration gradient within the system.

*Mass Transfer Concepts* equips an engineer with knowledge of all these operations.

**Contents:** Diffusion ❖ Interphase Mass Transfer ❖ Gas Absorption ❖ Distillation ❖ Leaching and Extraction ❖ Crystallisation ❖ Humidification ❖ Drying ❖ Adsorption ❖ Other Separation Processes ❖ Answers to Problems

2011 ♦ 428pp. ♦ Paperback

978-81-7371-727-7 ♦ ₹ 375.00

**Simple Approach to Group Theory in Chemistry, A***Swarnalakshmi, S., Saroja, T. & Ezhilarasi, R. M.*

The book explains the basics of group theory, what symmetry elements and operations are, how to identify point groups, the theorems involved, the applications of group theory to spectroscopy

The numerous worked-out examples and illustrations of symmetry elements and operations guide the reader in a step-wise manner through the subject. Even those without a background in mathematics will find this approach easy and helpful.

The book is based on the prescribed syllabus for M Sc Chemistry and can be used by students across India as a textbook. It can be used as a reference book by B Sc Chemistry students.

2008 ♦ 156 pp. ♦ Paperback

978-81-7371-623-2 ♦ ₹ 225.00

**Story of Chemistry, The***Datta, N. C.*

Chemistry touches every aspect of our life, but we are largely ignorant of it. A general reader has access to many popular books in the various areas of physics and astronomy, but in the area of chemistry there is virtually no accessible material. One common perception is that chemistry is a difficult subject, which is partially true. In science, a reader grasps the subject better and becomes interested, if it deals with easily identifiable objects and theories. This is not the case with chemistry. Atoms and molecules are not seen, whereas stars, planets

# CHEMISTRY

and rockets can be seen by the naked eye and evoke wonder in our mind.

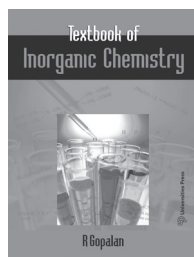
This book is an attempt to trace the development of chemistry from ancient times to the present, particularly up to the development of chemical bonding, which is the essence of chemistry. Throughout the book, the lives of the scientists and the social climate in which they worked have occupied a dominant position to evoke the drama and excitement of different discoveries.

2005 ♦ 488 pp. ♦ Paperback  
978-81-7371-530-3 ♦ ₹ 550.00

NEW

## Textbook of Inorganic Chemistry

Gopalan, R.



*Inorganic Chemistry for Undergraduates* conforms to the syllabus of the B.Sc Chemistry courses of Indian universities. This book not only fulfils the requirements of the syllabus but also caters to the students who would like to delve deeper into the subject. It convinces the student that there is more to inorganic chemistry than equations! This book will serve as a handy tool for teachers to plan their lectures.

**Special features:** Objectives are listed to give an overview of the chapter • Involves a systematic and interesting approach • Several worked out problems are provided • 'Boxed' matter on

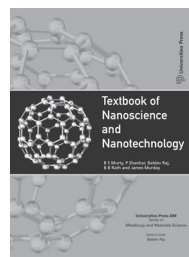
popular aspects are presented • Exhaustive question bank is provided at the end of each chapter.

**Contents:** Atomic structure ♦ Periodicity of properties ♦ Principles of inorganic qualitative analysis ♦ Principles of volumetric analysis ♦ Solvents for inorganic reactions ♦ Ionic bond ♦ Covalent bond: VB theory ♦ Covalent bond: Molecular orbital theory ♦ Hydrogen ♦ Alkali metals ♦ Alkaline earth metals ♦ Boron family ♦ Carbon family ♦ Nitrogen family ♦ Oxygen family ♦ Halogens ♦ Noble gases ♦ Principles of metallurgy ♦ Transition elements: Introduction ♦ Chemistry of transition elements ♦ Inner transition elements ♦ Coordination compounds ♦ Bioinorganic chemistry ♦ Nuclear Chemistry ♦ Industrial inorganic chemistry ♦ Environmental chemistry ♦ Supplementary reading ♦ Index

2011 ♦ 960 pp. ♦ Paperback  
978-81-7371-752-9 ♦ ₹ 460.00

## Textbook of Nanoscience and Nanotechnology

Murty, B. S., Shankar, P., Baldev Raj, Rath, B. B., Murday, James



This book is the second textbook in the Universities Press–IIM Series in Metallurgy and Materials Science. It is a book for beginners in the field of nanoscience and nanotechnology and is suitable for both undergraduate and postgraduate students who are taking a course in nanoscience and nanotechnology. It provides an introduction to the terminology and

historical perspectives of this domain of science, discusses the effects of size and the unique and widely differing properties of nanomaterials in comparison to bulk materials, and describes the advances in methods of synthesis, and consolidation and characterization techniques. The applications of nanoscience and technology and emerging materials and technologies are also presented in the book.

- Current data and research findings, with special emphasis on Indian sources, included in every chapter
- Exercises and problems at the end of each chapter
- Glossary and Index

**Contents:** The big world of nanomaterials ❖ Unique properties of nanomaterials ❖ Synthesis routes ❖ Applications of nanomaterials ❖ Tools to characterize nanomaterials ❖ Nanostructured materials with high application potential ❖ Concerns and challenges of nanotechnology

**2011 ♦ 254 pp. ♦ Paperback**  
**978-81-7371-738-3 ♦ ₹ 325.00**

### Textbook of Organic Chemistry

*Pillai, C.N.*

*Text Book of Organic Chemistry* is meant for students who learn organic chemistry at the undergraduate level and who have already had exposure to the basics of chemistry, including an introduction to organic chemistry. This book conforms to the syllabus of Indian universities at the undergraduate level, but can be useful to students at a more advanced level also.

The book has a deductive approach and reduces the need to learn by rote. The objectives are listed at the beginning of every chapter which gives the student an overview of the chapter. Each chapter has been structured in a logical and interesting manner that facilitates easy reading

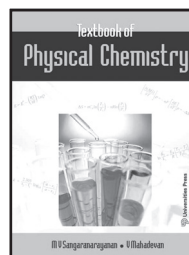
and understanding. This approach has been developed and perfected by the author over the course of his tenure as a teacher of organic chemistry. At the end of each chapter, exercises are provided which strengthen the students' understanding of the concepts discussed in the text. 'Challenging Questions' are given for those students who want to delve deeper into the subject. Topics of current interest that are related to the subject matter of the chapter are suggested for preparing project reports.

**2009 ♦ 640 pp. ♦ Paperback**  
**978-81-7371-689-8 ♦ ₹ 450.00**

**NEW**

### Textbook of Physical Chemistry

*Sanganarayanan, M. V. & Mahadevan, V.*



*Textbook of Physical Chemistry*, together with the companion books on organic chemistry and inorganic chemistry, meets the complete requirements of undergraduate students of chemistry across India. In a book comprising all the classical topics which span physical chemistry including chemical kinetics, electrochemistry and thermodynamics among others, uniformity in the depth of coverage of each topic is not easy to attain in view of the disjointed pace of growth of each discipline. Nevertheless, care has been taken to ensure that the material in this book will sustain the interest of students and motivate them to learn physical chemistry.

## CHEMISTRY

In order to aid students, every chapter contains the Objectives at the beginning and Key Points at the end. Various aspects of physical chemistry are dealt with in a lucid manner and interesting related matter is highlighted in boxes. The derivations are given in a comprehensible manner. Since physical chemistry involves numericals, several worked examples complement the text. The exercises at the end of each chapter, in particular, will be extremely valuable to sharpen the problem-solving skills and direct the student towards appreciating the nuances of physical chemistry.

**Special Features:** • Objectives are listed to give an overview of the chapter • Chapters are developed in a logical and interesting manner • Derivations are kept simple • Interesting matter is highlighted in grey boxes • Numerous worked out examples complement the text • Exercises at the end of each chapter to sharpen the problem-solving skills • Key points at the end of each chapter to aid revision

**Contents:** Quantum Chemistry ❖ Gaseous State ❖ Liquid State ❖ Solid State ❖ Colloidal State ❖ First Law of Thermodynamics ❖ Second Law of Thermodynamics ❖ Third Law of Thermodynamics ❖ Solutions ❖ Phase Equilibria ❖ Chemical Kinetics ❖ Surface Chemistry and Catalysis ❖ Photochemistry ❖ Electrochemistry—Ionics ❖ Electrochemical Cells ❖ Polarography ❖ Group Theory

2011 ♦ 592 pp. ♦ Paperback  
978-81-7371-726-0 ♦ ₹ 385.00

### Understanding Chemistry

Rao, C. N. R.

This supplementary book and multimedia package for students from senior school and first year B.Sc. is intended to bring out the excitement of chemistry and encourage more students to pursue this subject further. It explains the Hows

and Whys of chemistry to whet the appetite of a good student.

1999 ♦ 252 pp. ♦ Paperback  
978-81-7371-250-0 ♦ ₹ 290.00

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### UNIVERSITIES PRESS–IIM SERIES IN METALLURGY AND MATERIALS SCIENCE

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The series in Metallurgy and Materials Science has been initiated during the Diamond Jubilee of the Indian Institute of Metals (IIM). In the last decade the progress in the study and development of metallurgy and materials science has been rapid and extensive, giving us a whole new array of materials, with a wide range of applications, and a variety of techniques for both processing and characterizing them. With the help of an expert editorial panel of international and national scientists, the series aims to make this information available to a wide spectrum of readers through textbooks, monographs on select topics by experts in the field, and proceedings of select international conferences organized by the IIM.

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### FORTHCOMING

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#### Advances in Manufacturing Technology

*Editors: Baldev Raj, Jayakumar T., Sivaprasad, P. V., Rao, B. P. C., Sasikala, G.*

This book is part of the Universities Press–IIM Series in Metallurgy and Materials Science. It covers a broad spectrum of topics spanning the entire gamut of manufacturing—from the development of technologies, to realisation of products, their inspection and enterprise. It is organised thematically into four sections: trends in manufacturing technology, modelling and simulation, non-destructive evaluation and product development and technology enterprise.

It includes 40 papers from world-renowned experts.

### Advances in Materials Characterization

*Amarendra, G., Baldev Raj & Manghnani, M.H. (Eds.)*

Materials Characterization is an important area of fundamental and technological interest. A variety of experimental techniques have been developed over the years for characterizing the physical and chemical properties of materials. This book provides an overview of the recent advances in this area in terms of providing an in-depth review of the latest techniques. It comprises of review articles written by experts in these areas, providing an introduction, overview of the technique as well as demonstration of their applications to selected problems.

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2006 ♦ 228 pp. ♦ Hardback**  
**978-81-7371-568-6 ♦ Print on demand**

### Advances in Stainless Steels

*Baldev Raj & et al (Eds.)*

*Advances in Stainless Steels* is the fourth book in the IIM–Universities Press book series on Metallurgy and Materials Science. The book focusses on various facets—processing, component design, properties, fabrication and applications—of the wonder alloy: stainless steel. Stainless steels are a class of versatile alloys, which can be tailored to exhibit a wide range of engineering properties by alloy design and controlled thermomechanical treatments to meet demanding service conditions. Stainless steel production in India is presently about 1.8 million tonnes and accounts for nearly 7% of global tonnage produced. This is

likely to show an enormous increase in the near future.

This book covers a broad spectrum of topics spanning the entire life cycle of stainless steel—from alloy design and characterization to engineering design, fabrication, mechanical properties, corrosion, quality assurance of components, in-service performance assessment, life prediction and failure analysis of materials and components. The contents provide useful feedback for further developments aimed at effective utilization of this class of materials. The book comprises articles that bring out contemporary developments in stainless steels and is thematically classified into the following sections.

- Component design, modelling and structural integrity
- Manufacturing technology
- Property evaluation
- Alloy development and applications
- Non-destructive evaluation methods
- Corrosion and surface modification

The articles are of high relevance and interest to manufacturers, fabricators, researchers, designers, suppliers and end users of stainless steel, and serve as a valuable source for everyday reference and also as a guide for providing solutions for challenges connected with alloy design, material selection, melting, processing, fabrication, metallurgy and applications.

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2010 ♦ 692 pp. ♦ Hardback**  
**978-81-7371-696-6 ♦ ₹ 1995.00**

### Frontiers in the Design of Materials

*Baldev Raj, et al. (Eds.)*

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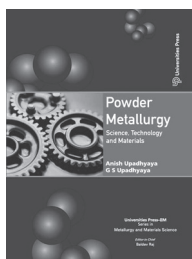
**Perspectives in Materials Characterization**

*Amarendra, G., Baldev Raj & Manghnani, M.H. (Eds.)*

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**NEW****Powder Metallurgy: Science, Technology and Materials**

*Upadhyaya, Anish & Upadhyaya, G. S.*



The Series in Metallurgy and Materials Science was initiated during the Diamond Jubilee of the Indian Institute of Metals (IIM). In the last decade the progress in the study and development of metallurgy and materials science has been rapid and extensive, giving us a whole new array of materials, with a wide range of applications, and a variety of techniques for both processing and characterising them. This book is the first textbook in the series.

Since the 1920s modern powder metallurgy has been used to produce a wide range of structural Powder Metallurgy (PM) components, self-lubricating bearings and cutting tools. The conventional method involves the production of metal powders, and manufacture of useful objects from such powders by die compaction and sintering. Wrought products are also produced by this route. Powder injection moulding permits the production of stronger, more uniform and more complex PM parts. A detailed discussion of PM materials and products is given in the book.

Special features: Sintering has been elaborated in two chapters—Sintering theory and Sintering technology • Testing and Quality Control of PM Materials and Products, is not found in many PM books • Techno-economics of PM processing are also described in detail • Powder metallurgical aspects of both metallic and ceramic systems are treated equally • Materials handling at various stages of processing • Pressureless powder shaping • Functionally graded materials • Powder Metallurgy material code • New approach-Pyrophoricity and toxicity in Chapter 3-Nanostructured materials and the electronic theory of sintering in chapter 7 • For powder metallurgical engineers-Variou kinds of actual testing and quality control methods in Chapter 11-ceramics materials in Chapter 12-Wide range of practically applied parts in Chapter 13

**Contents:** Chapter 1: Introduction—1.1 Powder Production and Characterisation; 1.2 Powder Treatment; 1.3 Powder Compaction; 1.4 Sintering; 1.5 Full Density Processing; 1.6 Secondary Treatments of P/M parts; 1.7 Applications; 1.8 Holistic View of P/M Science and Technology Questions and Problems; Further Readings ❖ Chapter 2: Powder Production—2.1 Chemical Methods; 2.2 Electrolytic Method; 2.4 Evaporation Method; 2.5 Mechanical Method; Questions and Problems; Further Readings ❖ Chapter 3: Powder Characterisation—3.1 Chemical Composition and Structure; 3.2 Particle Size and Shape; 3.3 Particle Surface Topography; 3.4 Surface Area; 3.5 Apparent and Tap Densities; 3.6 Flow Rate; 3.7 Compressibility; 3.8 Green Strength; 3.9 Pyrophoricity and Toxicity; 3.10 Powder Production Methods and Characteristics Relations; Questions and Problems; Further Readings ❖ Chapter 4: Powder Treatment—4.1 Annealing and Diffusion Alloying; 4.2 Powder Mixing / Milling; 4.3 Granulation; 4.4 Coating on Metal Powders; 4.5 Powder Degassing Questions and Problems; Further Readings ❖ Chapter 5: Powder Compaction—5.1 Basic Aspects; 5.2 Die Compaction; 5.3 Warm Compaction; 5.4 Wet Compaction; 5.5.Cold Isostatic Compaction; 5.6 Powder Roll Compaction; 5.7 Powder Extrusion; 5.8 Injection Moulding; 5.9 Green Part Materials

Handling Questions and Problems; Further Readings  
 ❖ Chapter 6: Pressureless Powder Shaping—  
 6.1 Slip Casting / Slurry Moulding; 6.2 Tape Casting;  
 6.3 Electrophoretic Deposition; 6.4 Spray Deposition  
 / Forming 6.5 Solid Preform Fabrication Questions  
 and Problems Further Readings Chapter 7. Sintering  
 Theory 7.1 Solid State Sintering 7.2 Activated  
 Solid State Sintering 7.3 Liquid Phase Sintering 7.4  
 Activated Liquid Phase Sintering Questions and  
 Problems Further Readings Chapter 8. Sintering  
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 Loose Sintering 8.3 Sintering Furnaces 8.4 Sintering  
 Zones 8.5 Rapid Sintering Processes 8.6 Sintering  
 Atmosphere 8.7 Sintering Atmosphere Analysis and  
 Control 8.8 Process Variables 8.9 Materials Variables  
 8.10 Dimensional Changes 8.11 Microstructural  
 Changes 8.12 Infiltration 8.13 Sintered Parts  
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 Dynamic Powder Compaction 9.2 Hot Pressing 9.3  
 Hot Isostatic Pressing 9.4 Powder Hot Extrusion 9.5  
 Powder Hot Forging 9.6 Powder Preform Rolling  
 9.7 Spark Sintering Questions and Problems Further  
 Readings Chapter 10. Secondary Treatments 10.1  
 Sizing 10.2 Machining 10.3 Impregnation 10.4  
 Surface Engineering 10.5 Heat Treatment 10.6 Joining  
 Questions and Problems Further Readings Chapter  
 11. Testing and Quality Control of P/M Materials and  
 Products 11.1 Sampling 11.2 Density 11.3 Sintered  
 Porosity and Pore Distribution 11.4 Structure of  
 Sintered Materials 11.5 Differential Thermal Analysis  
 11.6 Thermal Expansion 11.7 Thermal Shock  
 Resistance 11.8 Thermal Conductivity 11.9 Optical  
 Properties 11.10 Hardness 11.11 Strength 11.12  
 Impact Test 11.13 Fracture Toughness 11.14 Fatigue  
 Behaviour 11.15 Creep Behaviour 11.16 Fracture  
 Behaviour 11.17 Wear Resistance 11.18 Electrical  
 Resistivity 11.19 Magnetic Properties 11.20 Corrosion  
 Resistance 11.21 Quality Control Aspects of P/M Parts  
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 12. Metallic and Ceramic P/M Materials 12.1 Low  
 Alloy Steels 12.2 High Alloy Steels 12.3 Copper Alloys  
 12.4 Aluminium Alloys 12.5 Silver Alloys 12.6 Nickel  
 Alloys 12.7 Titanium Alloys 12.8 Refractory Metals  
 and Alloys 12.9 Intermetallics 12.10 Ceramic Systems  
 12.11 Cermets 12.12 Ceramic –Ceramic Composites

Questions and Problems Further Readings Chapter  
 13. P/M Applications 13.1 Structural Applications  
 13.2 Machine Tool Applications 13.3 Power  
 Generation Applications 13.4 Filter Applications 13.5  
 Friction Applications 13.6 Electrical Applications  
 13.7 Magnetic Applications 13.8 Oxygen Sensor  
 Applications 13.9 Thermal Management Applications  
 13.10 Bio-Implant Applications Questions and  
 Problems Further Readings Chapter 14. Techno-  
 economics of P/M Processing 14.1 Costs of Metal and  
 Ceramic Powders 14.2 Economics of Metal Powder  
 Production Methods 14.3 Economic Aspects of  
 Sintered Parts 14.4 Energy Aspects of Sintering Process  
 14.5 Economic Aspects of Full Density Consolidation  
 14.6 Economic Aspects of Powder Injection Moulding  
 14.7 Economic Aspects of Secondary Treatments 14.8  
 Economic Aspects of Outsourcing Questions and  
 Problems Further Readings

2011 ♦ 536 pp. ♦ Paperback  
 978-81-7371-717-8 ♦ ₹ 525.00

### Textbook of Nanoscience and Nanotechnology

*Murty, B. S., Shankar, P., Baldev Raj, Rath, B. B.,  
 Murday, James*

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# POPULAR SCIENCE

## 100 Writing Remedies: Practical Exercises for Technical Writing

*Weiss, E.H.*

This book presents thought-provoking examples designed to challenge your ability to recognise grammatical errors or style problems and actually “debug” faulty sentences. Designed for those who aren’t professional writers but for whom writing is a necessary part of the job—technical professionals, scientists, engineers, and others.

**1999 ♦ 112 pp. ♦ Paperback**  
**978-81-7371-266-1 ♦ ₹ 295.00**

## 50 Years of Space: A Global Perspective

*Manoranjan Rao, P.V. (Ed.)*

On October 4, 1957, the Soviet Union launched the world’s first man-made satellite Sputnik-1, opening the doors to a new cosmic era. To commemorate the 50th anniversary of this momentous occasion, *50 Years of Space: A Global Perspective* gathers in a single volume, brief histories of all the major space agencies of the world written by people of impeccable credentials.

In the past 50 years, many countries have found their own, unique paths to orbit. The objectives were multi-dimensional—an opportunity for investigating and understanding outer space; a means of showcasing technological superiority; a means to solve social problems.

The essays assembled in this book illustrate the many different solutions that each country or organisation has developed. But today, the countries have realised that to move forward, international cooperation is necessary. This book affords us a means to look backward, learn from our failures, and surge forward in a direction which will benefit all humanity.

**2008 ♦ 316 pp. ♦ Hardback**  
**978-81-7371-600-3 ♦ ₹ Print on demand**

Prices are subject to change without notice

## FORTHCOMING

## Agenda for Apprentice Scientist, The

*Nicole Ostrowsky*

The agenda of the apprentice scientist, translation of the original French book *L’agenda de l’apprenti scientifique*, is a walk through science by means of 365 simple activities/experiments. Each day starts with a question and a short description of what to do to try and get an answer. It explores a very wide range of topics, ranging from geometry to familiar technical objects, covering most experimental sciences, touching on probability and statistics as well as computer sciences. Activities as varied as chromatography or GPS localisation are demonstrated, emphasising the key aspect of the agenda: to let the apprentice discover by himself. The book tries to show nurtures a continuous curiosity in this do-it-yourself approach, which is the essential of research.

## Best Science Writing: Readings and Insights

*Gannon, R.*

Science writing is not technical writing, but a unique form of journalism. In *Best Science Writing*, you will find the finest science journalism combined with intelligent commentary to make a winning collection of highly readable and informative articles that can instruct and inspire writers and students.

**2000 ♦ 200 pp. ♦ Paperback**  
**978-81-7371-208-1 ♦ ₹ 195.00**

### **Birth of Time, The: How we Measured the Age of the Universe**

*Gribbin, J.*

This is an intriguing tale of false leads, blind alleys, and groping in the semi-dark towards the truth, told by a brilliant science writer who was involved, as a research astronomer, in the final breakthrough.

**2001 ♦ 232 pp. ♦ Paperback**  
**978-81-7371-337-8 ♦ ₹ 375.00**

### **Cake-Cutting Algorithms: Be Fair If You Can**

*Robertson, Jack & Webb, William*

Since the famous Polish school of mathematicians (Steinhaus, Banach, and Knaster) introduced and described algorithms for the fair division problem in the 1940s, the concept has been widely popularised.

This book finally gathers into one readable and inclusive source, a comprehensive discussion of the state-of-the-art in cake-cutting problems for both the novice and the professional. It offers a complete treatment of cake-cutting algorithms under all the considered definitions of fair, and presents them in a coherent, reader-friendly manner.

The first seven chapters of the book take a more leisurely and conversational look at the problem. Written with the novice in mind, they show the problem's inherent beauty, unhindered by intensive mathematical formalism.

Although the material in these chapters may be familiar, the authors believe that even an expert will discover a number of new ideas (or at least new takes on old problems) and will find them to be an excellent resource. The final four chapters are for the non-casual reader and contain

technical details of proofs not suited for the first section. Robertson and Webb have brought this elegant problem to life for both the high-school student and the professional researcher.

**2003 ♦ 192 pp. ♦ Paperback**  
**978-81-7371-448-1 ♦ ₹ 250.00**

### **Code Breaking: A History and Exploration**

*Kippenhahn, R.*

This brilliant history and exploration of the fascinating art and science of cryptography begins with Caesar's coded letters to Cicero, and ends with the computer hackers of the present. Code breaking has always played a key role in both the romance and the reality of espionage. Now, with the advent of electronic banking and widespread concerns about personal privacy, the issues surrounding the coding and decoding of information have assumed greater importance than ever before. Rudolf Kippenhahn provides both an exciting history of cryptography and a lucid exploration of the art of coding and decoding language.

**1999 ♦ 284 pp. ♦ Paperback**  
**978-81-7371-204-3 ♦ ₹ 425.00**

### **Creative Problem Solver's Toolbox, The**

*Fobes, R.*

This book describes more than sixty-five learnable thinking skills that create innovations or creatively solve problems of any kind. More than two hundred examples illustrate how to apply these skills to real-life situations. Behind-the-scene stories about well-known innovations such as the typewriter and basketball are included. Examples cover a wide variety of

situations including solving business problems, raising children, improving relationships, looking for employment, inventing, and solving global problems.

**1999 ♦ 352 pp. ♦ Paperback**  
**978-81-7371-159-6 ♦ ₹ 375.00**

### **Deterministic Chaos: Complex Chance Out of Simple Necessity**

*Kumar, N.*

*Deterministic Chaos* addresses the newly emerged paradigm of complexity of change. It describes how a simple system ruled by a deterministic law can evolve in a manner too complex to predict in the long run, even in principle, in an operationally qualitative, well-defined sense. With brevity and without oversimplification, it presents the concepts of Deterministic Chaos and powerful qualitative techniques to explore it. The book is within the grasp of any curious reader with a science background.

**1996 ♦ 112 pp. ♦ Paperback**  
**978-81-7371-042-1 ♦ Print on demand**

### **Dynamic Himalaya**

*Valdiya, K.S.*

This monograph aims to apprise readers of the natural events that occurred and the processes that were in operation before the emergence of the giant edifice of the Himalaya. Helping to achieve clearer understanding of the structural architecture or makeup, the book purports to highlight the mechanisms and the stages of development of the world's youngest mountain province. The text is supplemented with exhaustive data, maps, figures and colour photographs.

**1998 ♦ 196 pp. ♦ Paperback**  
**978-81-7371-094-0 ♦ ₹ 350.00**

### **e: The Story of a Number**

*Maor, E.*

The interest earned on a bank account, the arrangement of seeds in a sunflower, and the shape of the Gateway Arch in St. Louis are all intimately connected with the mysterious number *e*. In this informal and engaging history, Eli Maor portrays the curious characters and the elegant mathematics that lie behind the number.

**1999 ♦ 240 pp. ♦ Paperback**  
**978-81-7371-212-8 ♦ ₹ 275.00**

### **Eclipse: A Celestial Shadow Play**

*Shylaja, B.S. & Madhusudan, H.R.*

See page 9  
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### **Elements of Cosmology**

*Narlikar, J.V.*

This book is based on lectures given by the author at a number of universities with the aim of introducing Cosmology to students and teachers at the graduate level. Here, cosmology is explained within the framework of Newtonian gravity and mechanics thereby making it readily understandable to students of Physics and Mathematics at the undergraduate level. The description is up-to-date and includes cosmological models, their physical properties and observational tests.

**1996 ♦ 104 pp. ♦ Paperback**  
**978-81-7371-043-8 ♦ ₹ 150.00**

**Encyclopaedia of Classical Indian Sciences***Selin, Helaine & Narasimha, Roddam*

India's contributions to science and technology are among the most ancient and influential in the world. In mathematics, the decimal place value system with zero as a numeral, used universally today, owes its origin to India. The science of Ayurveda, which has been practised for millennia in India, is now gaining wider acceptance even as many ancient remedies are turned into modern drugs. Indian astronomical computations, ritual geometry, brick technology and metallurgical innovations have been among the finest achievements in the world of science and technology.

*Encyclopaedia of Classical Indian Sciences* is an attempt to provide an authentic account of natural science, technology and medicine as practised by Indians and other South Asians. It also includes biographical articles on many ancient Indian scientists, and some articles (polemic in nature) on the history of Indian science and technology, such as the essay on the effects of colonialism. All articles are contributions of acknowledged authorities on their subject drawn from across the world.

**2007 ♦ 492 pp. ♦ Hardback**  
**978-81-7371-555-6 ♦ ₹ 1025.00**

**Excursions into Mathematics: The Millennium Edition***Beck, Anatole, Bleicher, Michael N. & Crowe, Donald W.*

Taking the reader for short "excursions" into several specific disciplines of mathematics, it makes mathematical concepts accessible to a wide audience. The all-new Millennium Edition is updated with current research and new solutions to outstanding problems that have been discovered since the last edition was printed, such as the solution to the well-known "four-

colour problem." *Excursions Into Mathematics: The Millennium Edition* is an exciting revision of the original, much-loved classic. Everyone with an interest in mathematics should read this book.

**2003 ♦ 528 pp. ♦ Paperback**  
**978-81-7371-441-2 ♦ ₹ 495.00**

**Explorations in Mathematics***Hattangadi, A.A.*

The book deals with mathematical concepts from high school onwards. It discusses Pythagoras' theorem, logarithms, prime numbers, Pi, Fibonacci sequence and its variations, how to multiply extremely large integers, the Gregorian calendar, how a PC can be programmed using BASIC, number systems such as decimal, binary, octal and hexadecimal systems, and finally how string variables in the BASIC language can convert figures (in a cheque, for example) into words.

**2001 ♦ 240 pp. ♦ Paperback**  
**978-81-7371-387-3 ♦ ₹ 295.00**

**Fast Science Facts***Verma, S.*

This book is a unique collection of basic science facts, concepts and ideas presented in an easy-to-use format. It incorporates the best features of science dictionaries, encyclopedias, handbooks, data books and textbooks.

**1998 ♦ 248 pp. ♦ Paperback**  
**978-81-7371-092-6 ♦ ₹ 295.00**

### **Flying Buttresses, Entropy and O-Rings: The World of an Engineer**

*Adams, J.L.*

This book takes you on an enlightening tour of engineering and technology, demystifying such endeavours as design, research and manufacturing. From Teflon to Velcro, from bandwidths to base pairs, the artefacts of engineering and technology reflect the broad scope—and frustrating limitations—of our imaginations.

**1997 ♦ 272 pp. ♦ Paperback**  
**978-81-7371-086-5 ♦ ₹ 325.00**

### **From Clockwork to Crapshot: A History of Physics**

*Newton, Roger G.*

The book provides the perspective needed to understand contemporary developments in physics in relation to philosophical traditions as far back as ancient Greece.

Roger G Newton presents a history of physics from the early beginning to our day—with the associated mathematics, astronomy, and chemistry. Along the way, he gives brief explanations of the scientific concepts at issue, biographical thumbnail sketches of the protagonists, and descriptions of the new instruments that enabled scientists to make their discoveries. He traces a profound transformation from a deterministic explanation of the world—accepted at least since the time of the ancient Greek and Taoist Chinese civilizations—to the notion of probability, enshrined as the very basis of science with the quantum evolution at the beginning of the twentieth century. This brought about a fundamental shift in the focus of physicists—from dynamics or motion to the underlying architecture of the universe. Their new goal—to explain being rather than change—may well

be the defining characteristic of physics in the twenty-first century.

**2008 ♦ 352 pp. ♦ Paperback**  
**978-81-7371-625-6 ♦ ₹ 395.00**

### **Fun and Fundamentals of Mathematics**

*Narlikar, M. & Narlikar, J.*

This book introduces fundamental ideas in mathematics through interesting puzzles. Students, from age 12 upwards, who are bored with routine classwork in maths will enjoy these puzzles which will sharpen their logical reasoning. It is designed to arouse an interest in mathematics among readers in the 12–18 age group.

**2001 ♦ 200 pp. ♦ Paperback**  
**978-81-7371-398-9 ♦ ₹ 250.00**

### **How to Enjoy Calculus**

*Pine, E.S.*

This book is an essential primer for anyone who wants to familiarise himself or herself with calculus. Unlike other books on this subject, it is easy for anyone from any discipline to understand it. For too long this subject has been rendered mysterious and obscure.

With this book, calculus is demystified and can be easily grasped. This book also acts as a stepping-stone and enables you to go on to read other books on calculus with ease.

**2002 ♦ 136 pp. ♦ Paperback**  
**978-81-7371-406-1 ♦ ₹ 175.00**

**Imaginary Tale, An: The Story of  $\sqrt{-1}$** *Nahin, Paul J.*

The author tells the 2000-year old history of one of mathematics' most elusive numbers, the square root of minus one, also known as  $i$ , re-creating the baffling mathematical problems that conjured it up and the colourful characters who tried to solve them. Addressing readers with both a general and scholarly interest in mathematics, Nahin weaves into this narrative, entertaining historical facts, mathematical discussions, and the application of complex numbers and functions to important problems.

**2001 ♦ 280 pp. ♦ Paperback**  
**978-81-7371-399-6 ♦ ₹ 325.00**

**Indian Astronomy: An Introduction***Balachandra Rao, S.*

This, the first comprehensive book of its kind on Indian astronomy, is a survey of the development of astronomy in India from the Vedic times to the present day. It aims to create an awareness about Indian astronomy among interested students and general readers alike. The systematically-planned contents and a lucid style enable the reader to be fairly proficient in the concepts, techniques and computational procedures developed by great Indian astronomers like Aryabhata, Brahmagupta and Bhaskara II, over more than a millennium and a half. It provides, for the first time, computer programmes for the computation of true planetary positions, lunar and solar eclipses, and contains a detailed and very useful bibliography.

**1999 ♦ 124 pp. ♦ Paperback**  
**978-81-7371-205-0 ♦ Print on demand**

**Invention by Design: How Engineers Get from Thought to Thing***Petroski, H.*

Engineering entails more than knowing how things work. What do economics and ecology, aesthetics and ethics, have to do with the shape of a paper clip, the tab of a beverage can, the cabin design of a turbojet, or the course of a river? How do the idiosyncrasies of individual engineers, companies and communities leave their mark on projects such as Velcro, fax machines, and waterworks? This book offers an insider's look at these political and cultural dimensions of design, development, and production, and reaffirms Petroski as the master explicator of the principles and processes that turn thoughts into the many things that define our material world.

**2000 ♦ 256 pp. ♦ Paperback**  
**978-81-7371-290-6 ♦ ₹ 395.00**

══════ FORTHCOMING ══════

**Kariamanikkam Srinivasa Krishnan: His Life and Work**

The first four decades of the 20th century were glorious years for science, especially physics. Our view of the physical world changed forever with the emergence of quantum mechanics and Einstein's formulation of the theory of relativity. India too contributed significantly to this scientific revolution with the discoveries made by S N Bose, C V Raman and M N Saha, all in the space of about a decade. Kariamanikkam Srinivasa Krishnan (1898–1961) belonged to the same illustrious group. He was perhaps the only Indian physicist of his generation who was equally adept in theory and experiment. Besides a life of excellence in science, Krishnan's destiny led him to become an able science policy maker

and administrator; innately he was a great teacher, a humanist and a scholar of Sanskrit, Tamil literature and philosophy.

This biography, besides being a detailed and meticulously documented account of Krishnan's life and his scientific work, is also an exciting account of the history of Indian science of the period. The source material of this work, most of which are being used for the first time, comes from the private papers of K S Krishnan that had remained in the custody of his family.

### **Mathematics for Empowerment: Arithmetic and Algebra, Part 1**

*Shailesh Shirali*

The book is part of a two-volume set in Arithmetic and Algebra that explores topics of interest to students of mathematics in classes 7, 8 and 9 in Indian schools. Students reading this book will be encouraged to seek a career in pure or applied mathematics. It will also help higher secondary students revise the fundamental principles of arithmetic and algebra. The book will be appreciated by the enormous number of mathematically talented students in Indian schools.

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### **Nine Crazy Ideas in Science**

*Ehrlich, Robert*

AIDS is not caused by HIV. Coal and oil are not fossil fuels. Radiation exposure is good for you. These ideas make headlines, but most educated people scoff at them. Yet some of science's most important concepts from gravity to evolution have surfaced from the pool of crazy ideas. A well-known physicist with an affinity for odd ideas applies his open mind to nine controversial propositions on topical subjects. Anyone interested in unorthodox ideas will enjoy this

book. And, as a fun way of learning how to think like a scientist, it has enormous educational value.

**2005 ♦ 256 pp. ♦ Paperback**

**978-81-7371-524-2 ♦ ₹ 295.00**

## ══════ FORTHCOMING ══════

### **Paths of Innovators (Volumes I and II)**

*Parthasarathy, R*

This book contains a collection of scientists' lives, their struggles, their achievements and their laurels. They have been grouped under five disciplines Engineering, Physics, Mathematics, Chemistry and Life Sciences. The aim of these brief biographical sketches is to inspire a wider audience to take up the noble pursuit of pure sciences.

In science, a spectacular achievement is remembered but the foundation on which the achievement was based is often forgotten; Dr. Parthasarathy reminds us of this basic fact. The scientists selected by the author span several centuries and almost all the persons who laid the foundation of modern science and built its edifice are there. This is a storehouse of information, there is almost nothing in it, which is not interesting—R. Chidambaram (Principal Scientific Advisor to the Government of India and DAE–Homi Bhabha Professor).

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### **Schrödinger's Kittens and The Search for Reality**

*Gribbin, J.*

In this fascinating book, John Gribbin presents the latest evidence about the nature of light, the phenomenon that is the key ingredient in both quantum theory and relativity. The 'kittens' of his title are the offspring of Schrödinger's famously indeterminate cat, and their adventures as they are carried to opposite ends of the universe, are

a neat way of visualising the many perplexing paradoxes of the new view of reality. All of this is of much more than just theoretical interest. The practical applications are equally astounding, as John Gribbin describes the serious possibility that quantum theory could eventually be used to develop a Star Trek-style teleportation machine, and how it has already found applications in the development of uncrackable codes.

**1999 ♦ 272 pp. ♦ Paperback**  
**978-81-7371-242-5 ♦ ₹ 295.00**

### **Science 366: A Chronicle of Science and Technology**

*Basu, Biman*

Dates have an important place in our lives—not only are they historical occasions that we observe every year but they are also milestones to measure our growth in age, prosperity and wisdom. Therefore, dates in the scientific field can be used as a measure of progress in our quest for the unknown—dates when some important scientific discovery was made or some famous scientist was born. There are also dates that mark important breakthroughs in our understanding of the universe around us—new discoveries and new inventions that have changed our life.

This book can be considered a diary of scientific events—both Indian and inter-national including dates related to scientists and their works; inventors and their inventions; scientific organisations; and important scientific occurrences.

The entries are arranged chronologically. An entry for the date of birth of a scientist or inventor gives a brief biography of the person, while an entry for the date of founding or inauguration of a scientific institution gives a brief summary of the activities and achievements of the institution. All the entries are cross-referenced for easy navigation.

**2008 ♦ 712 pp. ♦ Paperback**  
**978-81-7371-607-2 ♦ ₹ 950.00**

### **Short Stories of Numbers**

*Kumar, Rajnish (Ed.)*

Why is 11 eleven and not oneteen, and 12 twelve and not twoteen? Why of all bases, has this strange number 2.718 . . . been chosen as the natural logarithm base called  $e$ ? Why does the computer use such a strange notation as F29 to denote 3881? These are questions that may have arisen in the curious minds of young learners. Here, by answering a few of these questions, the author brings out the innately fascinating quality of mathematics and its astonishing ability to explain many mysterious phenomena of nature. The material for Short Stories of Numbers has been collected by the author over years of adventuring in mathematics, motivated only by his love and passion for numbers and with the hope that it will serve as a friendly encouraging guiding post for other young adventurers.

**2010 ♦ 200 pp. ♦ Paperback**  
**978-81-7371-698-0 ♦ ₹ 275.00**

### **Structures and Strategies: An Introduction to Academic Writing**

*Davis, Llyod & Mckay, Susan*

Structures and Strategies is a new text on the writing and research skills that are central to academic writing at university and college levels. It offers a semester-length course that builds and refines students' abilities in these areas. The book comprises explanations of concepts and genres such as narration, description, persuasion, and academic argument, with a wide range of exercises and essay topics to develop and explore these ideas. Many examples of model texts for class discussion and analysis are provided. The four key steps of researching, planning, drafting and revising essays and assignments are emphasised, and numerous useful suggestions for improving the approach to these tasks are included. A practical chapter on accessing

computer-based catalogues and indexes for research is also included.

**1999 ♦ 248 pp. ♦ Paperback**  
**978-81-7371-152-7 ♦ ₹ 350.00**

### **Supercomputers: Shaping the Future**

*Rajaraman, V.*

This book explains what a supercomputer is and why such a machine is needed to solve challenging problems in science and engineering. The architecture of supercomputers which distinguishes them from other computers is explained and the need to vectorise programs to make effective use of supercomputers is brought out. The book presents details of some of the commercially available high performance computers. It concludes by describing some interesting applications of supercomputers.

**1999 ♦ 104 pp. ♦ Paperback**  
**978-81-7371-149-7 ♦ ₹ 150.00**

### **Superconductivity Today: An Elementary Introduction (Second Edition)**

*Ramakrishnan, T.V. & Rao, C.N.R.*

This book explains the fascinating subject of superconductivity in an easily understandable language. It exhaustively reviews the developments in this area, covering both experimental results and present theoretical understanding, and arouses the excitement of readers and research workers by highlighting new areas of its application.

**1999 ♦ 128 pp. ♦ Paperback**  
**978-81-7371-096-4 ♦ ₹ 195.00**

### **Survival Strategies: Cooperation and Conflict in Animal Societies**

*Gadagkar, R.*

Did you know that Tasmanian hens have two husbands? That vampire bats will share food with hungry fellow bats and that Hanuman langurs commit infanticide? Why creatures great and small behave in such fascinating and seemingly perplexing ways is explained in this delightful account of the evolutionary foundations of animal social behaviour. Illustrated with both photographs and explanatory diagrams, this expert and inviting tour of the social world of animals will inform and charm anyone curious about the motivations behind the amazing range of activity in the animal kingdom.

**1998 ♦ 192 pp. ♦ Paperback**  
**978-81-7371-114-5 ♦ ₹ 195.00**

### **Top 1000 Scientists: From the Beginning of Time to 2000 AD**

*Barker, Philip*

The history of scientific progress is full of surprises. How many people realise, for example, that the term 'electricity' was coined in 1646?, or that Benjamin Franklin invented the lightning conductor?, that even a seemingly recent invention such as the television turns out to have been patented in 1884.

This book covers science and scientists from the earliest recorded days right up to the new millennium, and will become an invaluable reference work as well as a delight to dip into.

**2002 ♦ 448 pp. • Paperback**  
**978-81-7371-210-4 ♦ ₹ 595.00**

**Trigonometric Delights***Maor, E.*

In this book, Maor rejects the usual arid descriptions of the sine and cosine functions and their trigonometric relatives. He brings the subject to life in a compelling blend of mathematics, history, and biography. From the 'proto-trigonometry' of the Egyptian pyramid builders to Renaissance Europe's quest for more accurate artillery, from the earliest known trigonometric table, carved on a clay tablet by an unknown Babylonian scholar, to Fourier's famous theorem, which finally explained the source of musical harmony, here is a rich tapestry of almost four thousand years of trigonometric history.

**2000 ♦ 256 pp. ♦ Paperback**  
**978-81-7371-206-7 ♦ ₹ 325.00**

**Turning the World Inside Out and 174 Other Simple Physics Demonstrations***Ehrlich, Robert*

Here is a collection of physics demonstrations costing very little to produce, yet illustrating key concepts in amazingly simple and playful ways. Intended for instructors, students, and curious lay readers, these demonstrations make use of easily accessible, everyday items. Each demonstration outlines the objective, the equipment needed, the procedure and in many instances, ways for a teacher to perform the demonstration on an overhead projector. These diverse and flexible demonstrations will serve a wide range of educational levels, from middle school physical science to university physics.

**2000 ♦ 244 pp. ♦ Paperback**  
**978-81-7371-329-3 ♦ ₹ 250.00**

**Understanding Chemistry***Rao, C.N.R.*See page 28  
.....**Understanding Mathematics***Sinha, K.B., et al.*

This book is aimed at students at the plus 2 level and attempt to explain why the definitions and the theorems are the way they appear, thereby improving their understanding of mathematics. It will also be useful for school teachers and for first year college students.

**2000 ♦ 264 pp. ♦ Paperback**  
**978-81-7371-355-2 ♦ ₹ 275.00**

**Wings of Fire: An Autobiography***Kalam, A.P.J. Abdul with Arun Tiwari*

Avul Pakir Jainulabdeen Abdul Kalam, the son of a little-educated boat-owner in Rameswaram, Tamil Nadu, had an unparalleled career as a defence scientist, culminating in the highest civilian award of India, the Bharat Ratna. As chief of the country's defence research and development programme, Kalam demonstrated the great potential for dynamism and innovation that existed in seemingly moribund research establishments. This is the story of Kalam's rise from obscurity and his personal and professional struggles, as well as the story of Agni, Prithvi, Akash, Trishul and Nag—missiles that have become household names in India and have raised the nation to the level of a missile power of international reckoning. This is also the saga of independent India's struggle for technological self-sufficiency and defensive autonomy—a story as much about politics (domestic and international) as it is about science.

**1999 ♦ 212 pp. ♦ Paperback**  
**978-81-7371-146-6 ♦ ₹ 250.00**

### **Wings of Fire: An Autobiography (Abridged, Special Student Edition with Exercises)**

*Kalam, A.P.J. Abdul with Arun Tiwari*

This simplified and abridged version now makes Dr Kalam's inspirational story accessible to students. A comprehensive glossary provides help in the understanding of technical terms. This Special Student Edition includes exercises.

**2004 ♦ 144 pp. ♦ Paperback**  
**978-81-7371-548-8 ♦ ₹ 125.00**

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### **ON THE SHOULDERS OF GIANTS**

*(A SERIES BY SPANGENBURG, R. & MOSER, D.K.)*

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The series called on the shoulders of giants, looks at how people have developed a system for finding out how the world works, making use of both success and failure. We will look at the theories they put forth, sometimes right and sometimes wrong. And we will look at how we have learned to test, accept and build upon those theories, or to correct, expand or simplify them.

We'll also see how scientists have learned from others' mistakes, sometimes having to discard theories that once seemed logical but later proved to be incorrect, misleading or unfruitful. In all these ways they have built upon the shoulders of other men and women of science—the giants who went before them.

### **History of Science in the Eighteenth Century, The**

This book covers the Enlightenment and the beginnings of the Industrial Revolution. It recounts the findings of leading scientists of the day on such subjects as electricity, gases, and the classification of living things. Included also is a discussion of the scientific theories that shaped and inspired the discoveries of this vital

era. Illustrated with line art and photographs, this book presents the amazing breadth of 18th-century scientific thought, which laid the foundations for the way we perceive the world today.

**1994 ♦ 176 pp. ♦ Paperback**  
**978-81-7371-193-0 ♦ ₹ 250.00**

### **History of Science in the Nineteenth Century, The**

This book outlines the greatest achievements of the century that brought to a close the era of classical science and set the stage for the development of science as we know it today. This period saw exciting discoveries about electricity and magnetism; genetics and evolution; the age of the earth; the stars and planets; and the nature of infection and disease—discoveries that revolutionised the way people lived and perceived the world around them. Enhanced with numerous photographs and illustrations, this volume is a fascinating introduction to the breadth and vitality of nineteenth century scientific thought.

**1994 ♦ 160 pp. ♦ Paperback**  
**978-81-7371-195-4 ♦ ₹ 250.00**

### **History of Science from 1946 to the 1990s, The**

This, the final book in the series, discusses the most significant scientific breakthroughs since World War II. The book addresses the move toward increased specialisation in all branches of science and the greater use of computers in scientific research. From the study of subatomic particles to missions into outer space, it reveals the rapidly expanding horizons of science. Lavishly illustrated, this book also explores a change in attitude toward science—while science enabled enormous advances in the 20th century, it is sometimes blamed for dangers

such as the threats from nuclear war, waste, and power plant accidents, and the deterioration of the ozone layer.

**1994 ♦ 192 pp. ♦ Paperback**  
**978-81-7371-196-1 ♦ ₹ 250.00**

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**MATHEMATICAL MARVELS**  
(A SERIES BY SHIRALI, SHAILESH A.)

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This delightful series is for students, general readers and teachers. In fact anyone with an interest in mathematics will enjoy these books and find much to gain from them. They will be of use particularly to students who wish to appear for the Mathematical Olympiads, and to teachers who are looking for material and sources outside the regular curriculum to enliven their mathematics programme.

### Adventures in Problem Solving

This book deals with an important area in mathematics—problem solving—making it an exciting adventure. Having been associated with the Mathematical Olympiad programme since its inception in India, the author has drawn a lot on this experience in terms of material as well as in terms of the lucid style of writing. In this book, which is addressed to problem buffs, you will find many topics in ‘serious’ and ‘recreational’ mathematics developed through problems (surds, logarithms, geometry, inequalities, magic squares, cryptarithms, logic, counting, number theory, games such as Nim, . . .). It will be particularly useful to students who wish to appear for the Mathematical Olympiads.

**2002 ♦ 328 pp. ♦ Paperback**  
**978-81-7371-413-9 ♦ ₹ 350.00**

### First Steps in Number Theory: Primer on Divisibility

This book deals with tests of divisibility and the rich theory behind them. Along the way, the reader will study a subject called number theory. To study this book, all that is required is familiarity with elementary arithmetic and algebra (addition and subtraction of algebraic expressions, the laws of exponents, the idea of prime factorisation of an integer, the notion of relative primeness of two integers, etc.); in short, material which would normally be covered in grades 7–9 in most countries—Plenty of exercises are scattered throughout the book, with solutions at the end.

**2000 ♦ 200 pp. ♦ Paperback**  
**978-81-7371-368-2 ♦ ₹ 250.00**

### Primer on Logarithms, A

The book describes how logarithms are used in scales of measurement: for intensity of sound (decibel scale), intensity of earthquakes (Richter scale), level of acidity of a solvent (pH level), brightness of stars (absolute and apparent magnitude). The key properties of the log function are presented—those that make it so attractive and so indispensable in science—for describing population growth, radioactivity, cooling, etc. This book will be particularly useful to students who wish to appear for the Mathematical Olympiads. The presentation is enhanced with snippets and illustrated by line drawings.

**2002 ♦ 200 pp. ♦ Paperback**  
**978-81-7371-414-6 ♦ ₹ 250.00**

### Primer on Number Sequences, A

This book offers an excursion into the world of number sequences, objects that occur widely all through mathematics. Part I deals with the generating formula of a sequence, and Part II with individual sequences such as the squares, the cubes, the primes, the unit fractions, the

Fibonacci numbers, and so on. The book is aimed at students and general readers. It will be particularly useful to students who wish to appear for the Mathematical Olympiads.

**2001 ♦ 172 pp. ♦ Paperback**  
**978-81-7371-369-9 ♦ ₹ 320.00**

**MATHEMATICAL WORLD**  
 (A SERIES IN ASSOCIATION WITH THE  
 AMERICAN MATHEMATICAL SOCIETY)

This accessible series brings the beauty and wonder of mathematics to the advanced high school student, the mathematics teacher, the scientist or engineer, and the lay reader with a strong interest in mathematics. *Mathematical World* features well-written, challenging expository works that illustrate the fascination and usefulness of mathematics.

**Knots and Surfaces: A Guide to Discovering Mathematics**

*Farmer, D. & Stanford, T.*

The subject studied here is the mathematics behind the idea of connectedness, but the methods and ideas apply to all of mathematics.

**1998 ♦ 112 pp. ♦ Paperback**  
**978-81-7371-110-7 ♦ ₹ 165.00**

**KVANT SELECTA: Algebra and Analysis**

*Tabachnikov, Serge (Ed.)*

These two books are the first volumes of articles published from 1970 to 1990 in the Russian journal, *Kvant*. The influence of this magazine on mathematics and physics education in Russia is unmatched. Articles selected for these two volumes are written by leading Russian mathematicians and expositors. Some articles

contain classical mathematical gems still used in university curriculae today. The articles in these books are written so as to present genuine mathematics in a conceptual, entertaining, and accessible way. The volumes are designed to be used by students and teachers who love mathematics and want to study its various aspects, thus deepening and expanding the school curriculum. The articles in the first volume are mainly devoted to various topics in number theory, and the second volume treats diverse aspects of analysis and algebra.

Volume 1

2002 ♦ 168 pp. ♦ Paperback  
 978-81-7371-417-7 ♦ ₹ 225.00  
 .....

Volume 2

2002 ♦ 176 pp. ♦ Paperback  
 978-81-7371-418-4 ♦ ₹ 225.00  
 .....

**Mathematical Circles (Russian Experience)**

*Fomin, D., Genkin, S. & Itenberg, I.*

This book was produced by a remarkable cultural circumstance in the former Soviet Union which fostered the creation of groups of students, teachers, and mathematicians called *Mathematical Circles*. The work is predicated on the idea that studying mathematics can generate the same enthusiasm as playing a team sport—without necessarily being competitive. This book is intended for both students and teachers who love mathematics and want to study its various branches beyond the limits of the school curriculum. It is also a book of mathematical recreation and, at the same time, a book containing vast theoretical and problem material in the main areas of what the authors consider to be 'extracurricular mathematics'.

**1998 ♦ 288 pp. ♦ Paperback**  
**978-81-7371-115-2 ♦ ₹ 295.00**

**Primer of Mathematical Writing, A***Krantz, S.G.*

This book is about writing in the professional mathematical environment. There are few people equal to this task, yet Steven Krantz is one who qualifies. While the book is nominally about writing, it is also about how to function in the mathematical profession. Krantz has produced a quality work which makes evident the power and significance of writing in the mathematical profession.

**1998 ♦ 240 pp. ♦ Paperback**  
**978-81-7371-127-5 ♦ ₹ 275.00**

**Stories about Maxima and Minima***Tikhomirov, V.M.*

This book aims to acquaint the reader with the whole circle of ideas and provide an understanding of how and why a mathematical theory is born. In Part I the reader will get to know many concrete problems and, in the course of the discussion of their solutions, will get to know the creative work of some of the best mathematicians of the past. In Part II the author introduces a method to solve maximum and minimum problems that originated with Lagrange and concludes by solving all the problems that are dealt with in Part I (problems marked by the dissimilarity of their solutions) by means of a single general method, in a standard way, by using one and the same solution.

**1998 ♦ 200 pp. ♦ Paperback**  
**978-81-7371-121-3 ♦ ₹ 250.00**

**Techniques of Problem Solving***Krantz, S.G.*

The purpose of this book is to teach the basic principles of problem solving, including both mathematical and non-mathematical problems. Taking a direct and practical approach to the subject matter, Krantz's book stands apart from others like it in that it incorporates exercises throughout the text. Additional problems are included for readers to tackle at the end of each chapter. There are more than 350 problems in all. A Solutions Manual to most end-of-chapter exercises is available.

**1998 ♦ 480 pp. ♦ Paperback**  
**978-81-7371-116-9 ♦ ₹ 495.00**

**Solutions Manual for Techniques of Problem Solving***Fernández, L. & Gooransarab, H.*

This manual contains solutions to most of the exercises in the book *Techniques of Problem Solving* by Steven G. Krantz. It is essential that this manual be used only as a reference, and never as a way to learn how to solve the exercises. It is strongly encouraged never to look up the solution of any exercise before attempting to solve it. The 'attempt time' will always be as rewarding to the student—or maybe more—as solving the exercise itself.

**1998 ♦ 200 pp. ♦ Paperback**  
**978-81-7371-117-6**

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This series of books is for those interested in recreational mathematics. Whether a newcomer or an old-timer in the field, each reader will find in these books a brand new experience. The books in this series are collections of closely-related articles from a magazine, *The Journal of Recreational Mathematics*.

**At Last !! Encoded Totals Second Addition**

*Kahan, S.*

This long-awaited sequel to *Have Some Sums to Solve* deals with alphametics or cryptarithms interspersed with fascinating facts in number theory. The appeal of these puzzles can really be traced to the fact that achieving success is virtually independent of one's mathematical prowess.

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- The future implications for the science or technology, in terms of its advantages to human life as well as its possible negative impact upon humans and the environment.

**Healing Drugs: The History of Pharmacology**

*Margery & Facklam, H.*

Billions of dollars are spent each year for the research and development of drugs. Who invents them or finds them? How do we know they're safe? How are they tested and how much time does it take from their invention to general use? This book answers all of these questions and more. It tells the story of pharmacology, beginning with ancient medicine men and their herbs and continuing to today's high-tech research labs.

**2000 ♦ 128 pp. ♦ Paperback**  
**978-81-7371-342-2 ♦ ₹ 175.00**

**Lasers: The New Technology of Light**

*Billings, C.W.*

Once the stuff of science fiction legend, lasers are now employed for everything, from clocking the speed of moving traffic to performing delicate eye surgery. This book addresses the basic questions—What is a laser? What are the theories about light?—and gives the details about different types of lasers and how they are used. It also includes information about the pioneers in the field and about how lasers are employed in medicine, the military, industry, research, and communications.

**2000 ♦ 128 pp. ♦ Paperback**  
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### Robotics: The Marriage of Computers and Machines

*Thro, E.*

*Robotics* gives the reader a thorough understanding of this amazing science and, more generally, the science of artificial intelligence. Coverage includes the anatomy of a robot (vision systems, sensors, and control mechanisms), industrial robots and how they are used around the world, and specialised robots (those used in the military, in space, and in hazardous situations). The book also addresses the larger questions: How far can robot technology go? Will increased use of robots mean fewer jobs? Are the benefits worth the cost?

2000 ♦ 128 pp. ♦ Paperback  
978-81-7371-343-9 ♦ ₹ 225.00

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#### VIGNETTES IN PHYSICS

(A SERIES BY VENKATARAMAN, G.)

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The series is intended for those interested in science and who would like to get a broad perspective without being loaded with a lot of technical details. Though directed at the young, the readership can be of all ages and tastes, provided there is a basic interest in science.

Written in the spirit of the Feynman lectures, the series (comprising 14 books on diverse topics in physics) is intended to arouse curiosity and inspire the young student towards a career in science. A large number of anecdotes, vividly describing some of the most breathtaking moments of discovery, are included.

#### At the Speed of Light

This book is about the theory of relativity. The story of relativity is, in a sense, the story of one man—Albert Einstein. The book deals only with

the special theory, which you will find is not very difficult to understand.

1992 ♦ 136 pp. ♦ Paperback  
978-81-7371-009-4 ♦ ₹ 195.00

### Bhabha and His Magnificent Obsessions

This book is about the remarkable scientist Homi Jehangir Bhabha who, at the age of eighteen, went to Cambridge to study physics and started his research career there. In 1939, when Bhabha came to India on a short vacation, he was forced to stay on as the Second World War broke out. This was, of course, a blessing for the country as he later steered the country's scientific destiny. The book records Bhabha's contributions which were in many dimensions and not just purely scientific.

1994 ♦ 222 pp. ♦ Paperback  
978-81-7371-007-0 ♦ ₹ 250.00

### Big and The Small, The Vol. I: Journey into the Microcosm: The Story of Elementary Particles

The *Big and the Small* is a two-volume set which depicts the story of high-energy physics and man's attempt at reconstructing creation. By probing deeper and deeper into the innermost recesses of the atom, physicists have been able to obtain not only a better understanding of the vast cosmos but indeed of the origin of the cosmos itself. This book is about the greatest adventure in human history—man's attempt to reconstruct creation by a combination of the most daring flights of imagination and mind-boggling experiments. It is, in short, the study of high-energy physics which may aptly be called the second creation, or man's attempt to reconstruct creation.

2001 ♦ 284 pp. ♦ Paperback  
978-81-7371-227-2 ♦ ₹ 275.00

### **Big and The Small, The Vol. II: From the Microcosm to the Macrocosm: The Fascinating Link between Particle Physics and Cosmology**

The *Big and the Small* is a two-volume set which depicts the story of high-energy physics and man's attempt at reconstructing creation. The narration, laced with glimpses of the history of events and people, makes for riveting reading; the reader is drawn irresistibly to experience the thrill of finding plausible theories—theories that sometimes seem so audacious that they challenge the very limits of human imagination.

While the first volume, *Journey into the Microcosm: The Story of Elementary Particles*, deals with the small, i.e., the world of elementary particles, the second volume, *From the Microcosm to the Macrocosm: The Fascinating Link between Particle Physics and Cosmology*, takes the reader to the other extreme, the big, or the cosmos, and then wraps up the story by briefly describing the fascinating connecting link between the two. In a sense, the small and the big are like the two strands of the DNA; in this case, they form the strands of the DNA of the cosmos itself.

**2006 ♦ 232 pp. ♦ Paperback**  
**978-81-7371-574-7 ♦ ₹ 250.00**

### **Bose and His Statistics**

This book describes a monumental discovery made by Satyendranath Bose. It also helps the reader take a step closer in understanding Bose—the scientist—and describes the events that surround this exciting discovery.

**1992 ♦ 136 pp. ♦ Paperback**  
**978-81-7371-036-0 ♦ ₹ 195.00**

### **Chandrasekhar and His Limit**

This is a heartwarming and very inspiring story about Subrahmanyam Chandrasekhar, the most distinguished mathematical physicist India has produced. In a long and remarkable career, Chandrasekhar has done many outstanding things but this book concentrates mostly on one of them, namely, the discovery of the Chandrasekhar Limit.

**1992 ♦ 144 pp. ♦ Paperback**  
**978-81-7371-035-3 ♦ ₹ 195.00**

### **Hot Story, A**

This book attempts to explain the terms heat and temperature. Instead of relying mainly on technical explanations that are highly mathematical, the author takes a look at what really lies behind these phenomena.

**1992 ♦ 140 pp. ♦ Paperback**  
**978-81-7371-010-0 ♦ ₹ 195.00**

### **Many Phases of Matter, The**

This book is about phase transitions. It seeks to unfold the universal connecting link between diverse physical phenomena, all involving a change of state.

**1991 ♦ 104 pp. ♦ Paperback**  
**978-81-7371-034-6 ♦ ₹ 195.00**

### **Quantum Revolution I—The Breakthrough**

The discovery of quantum mechanics is often hailed as the greatest revolution in human thought. This volume, the first of three, seeks to capture the drama of this supreme achievement.

**1993 ♦ 200 pp. ♦ Paperback**  
**978-81-7371-002-5 ♦ ₹ 195.00**

### Quantum Revolution II—QED: The Jewel of Physics

This volume describes how the battle of infinities was fought and, more importantly, about a new approach to quantum mechanics. It deals with the birth of quantum electrodynamics, a theory of incredible and unmatched precision and the most perfect physical theory known to man.

**1993 ♦ 144 pp. ♦ Paperback**  
**978-81-7371-003-2 ♦ ₹ 195.00**

### Quantum Revolution III—What is Reality?

This concluding part of the trilogy on quantum mechanics deals with the fascinating question: Is there really a world out there or does it exist because we see it?

**1993 ♦ 140 pp. ♦ Paperback**  
**978-81-7371-004-9 ♦ ₹ 195.00**

### Raman and His Effect

This book deals with the famous Scattering Effect discovered by Sir C.V. Raman. It gives us deep insights into the character of this famous scientist and vividly describes the circumstances surrounding the discovery.

**1995 ♦ 108 pp. ♦ Paperback**  
**978-81-7371-008-7 ♦ ₹ 195.00**

### Saha and His Formula

A great leap forward in unravelling the mysteries of the Sun occurred way back in 1920 when Meghnad Saha made an important discovery that paved the way for a systematic study of stellar atmospheres in general. This book is about that great discovery and the man who made it.

**1995 ♦ 206 pp. ♦ Paperback**  
**978-81-7371-017-9 ♦ ₹ 195.00**

### Why are Things the Way They Are?

This book uses basic calculations to help the student answer questions such as, 'Why is the size of an atom roughly 10<sup>-8</sup> cm and not 1 cm?' or 'Why is the height of Mount Everest 10 km and not 100 km?' In short, 'Why are things the way they are?' This book is an introduction to some methods of making rapid estimates, and shows how estimated answers can be made in just a few steps.

**1992 ♦ 120 pp. ♦ Paperback**  
**978-81-7371-033-9 ♦ ₹ 195.00**

# BIODIVERSITY

## AGRICULTURE AND FORESTRY

### Controversial Drug Plants

*Nair, Vasudevan*

This book describes some commonly used medicinal plants of uncertain botanical identity. With the increased public interest in the use of herbs to treat ailments, many spurious plants are being used in the manufacture of Ayurvedic medicines. This is sometimes owing to ignorance and in other cases, an attempt by unscrupulous manufacturers taking advantage of this demand. The book differentiates between adulterants, substitutes and genuine drugs. This book will be helpful to those manufacturers who wish to use genuine drug plants in their preparations and to educate lay people who are using Ayurvedic remedies. It will also be useful to pharmacists.

**2003 ♦ 120 pp. ♦ Paperback**  
**978-81-7371-469-6 ♦ Print on demand**

### Cultivation of Medicinal and Aromatic Crops (Revised Edition)

*Farooqi, A.A. & Sreeramu, B.S.*

In recent years, there has been a tremendous growth of interest in plant-based drugs, pharmaceuticals, perfumery products, cosmetics and aromatic compounds used in food flavours, fragrances, and natural colours. An attempt has been made in this book to provide all possible pooled information including the research findings that have been generated by the Division of Horticultural Sciences, the University of Agricultural Sciences, the Indian Institute of Horticultural Research, the Central Institute of Medicinal and Aromatic Crops, the National Botanical Research Institute, the Regional Research Laboratories, ICAR, and others.

**2004 ♦ 344 pp. ♦ Paperback**  
**978-81-7371-504-4 ♦ ₹ 900.00**

### Cultivation of Spice Crops

*Farooqi, A.A., Sreeramu, B.S. & Srinivasappa, K.N.*

Spices constitute an important group of agricultural commodities, which, since antiquity, have been used for flavouring foods. Some species are used in the pharmaceutical, perfumery, cosmetics and related industries, and others possess colourant, preservative, antioxidant, antiseptic and antibiotic properties.

This book reflects the intensive research carried out on this group of 42 spice crops since 1971, the improvement in agro-techniques and the release of many high-yielding varieties. It provides exhaustive information on all aspects of cultivation, harvesting and processing of each crop and will be an invaluable aid to students, teachers and growers of spice crops, both individual and corporate.

**2005 ♦ 468 pp. ♦ Paperback**  
**978-81-7371-521-1 ♦ Print on demand**

### Herbal Home Remedies

*Nair, Vasudevan*

This book contains information about the use of common plants to cure common ailments based on knowledge gained from the experience of generations. The suggested treatments are simple, inexpensive and easy to follow. They are recommended only as primary health care measures. The book is beautifully illustrated with line drawings of each plant to facilitate easy identification.

**2004 ♦ 58 pp. ♦ Paperback**  
**978-81-7371-482-5 ♦ ₹ 100.00**

Prices are subject to change without notice

### Indian Medicinal Plants: A Compendium of 500 Species

Warrier, P.K., Nambiar, V.P.K. & Ramankutty, C.

This compendium is based on a treatise prepared by S. Raghunatha Iyer, a scholar of both Sanskrit and Ayurveda and aims to make an authoritative contribution to the field. The original work which drew upon classical texts and current research, as well as the oral medical knowledge of tribal groups, has been updated by scholars associated with the Arya Vaidya Sala in Kottakal, India.

This unique compendium offers profiles of 500 key species with detailed taxonomic information. One of the leading features of this compilation is the special technique used in the illustrations, both colour and line, which aims to achieve authenticity of texture, colour and form.

The compendium also lists the distribution and popular nomenclature in English, Sanskrit, Hindi, Malayalam and Tamil. The main texts present properties and uses in a format which cites ancient verse texts and ethnobotanical sources. This rare work, in five volumes, should be of special interest to practitioners of alternative medicine, students of Ayurveda, the research and industry associated with medical botany, pharmacologists, sociologists and medical herbalists.

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1993 • 430 pp. • Hardback  
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#### Volume 3

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978-81-7371-706-2 • ₹ 875.00  
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### Dynamic Himalaya

Valdiya, K.S.

This monograph aims to apprise readers of the natural events that occurred and the processes that were in operation before the emergence of the giant edifice of the Himalaya. Helping to achieve clearer understanding of the structural architecture or makeup, the book purports to highlight the mechanisms and the stages of development of the world's youngest mountain province. The text is supplemented with exhaustive data, maps, figures and colour photographs.

1998 ♦ 196 pp. ♦ Paperback  
978-81-7371-094-0 ♦ ₹ 350.00

### Elementary Exercises in Geology

Prasad, C V R K

The absence of a book of exercises in geology has been deeply felt by Indian students. This book is an attempt to fill the lacuna. It provides basic training in the principles of geology along with some bare facts on many topics. Although the method adopted is elementary, any student completing the exercises will profit by getting many facts and ideas permanently imbedded in his or her mind. This book shows how with simple arithmetic and easily drawn graphs, a student can find the age of a local rock, trace the drift of India, estimate the rise in the height of the Himalayas and even locate the epicentre of a recent earthquake, thus opening his eyes to the fascination of geology.

2005 ♦ 216 pp. ♦ Paperback  
978-81-7371-502-0 ♦ ₹ 275.00

## BIODIVERSITY

### Geology, Environment and Society

*Valdiya, K.S.*

This book on the applied aspects of environmental geology encapsulates a geologist's concern that people are selling their future to finance their present. It explores subjects of ecosystem structure; soil and mineral resources and their conservation; hydrogeology and water resources management; terrain evaluation and land-use planning; engineering geology and the application of technology; understanding earth processes and natural hazards, climate change and drought; careful waste disposal methods; and medical geology.

The book addresses the problems of environmental security within the context of geological settings and the geodynamic sensitivity of terrains. It suggests measures to mitigate the adverse consequences of tampering with nature's fine balance. Over 150 detailed and clearly labelled diagrams, photographs, maps and satellite images illustrate these aspects, and are critical to the understanding of these problems.

**2004 ♦ 240 pp. ♦ Paperback**  
**978-81-7371-505-1 ♦ ₹ 350.00**

## ENVIRONMENTAL MANAGEMENT

### Corporate Environmental Management

*Welford, R. et al.*

This book presents a comprehensive analysis of the role of business in safeguarding the environment. It gives a detailed, critical examination of all the key tools of corporate environmental management, including environmental management systems and standards; environmental policies, guidelines and charters; environmental auditing; life-cycle assessment; the measurement of environmental performance; and environmental reporting. The

book emphasises systems based environmental management, and also considers how such an approach might be integrated within local authorities and small- and medium-sized companies. It then extends the systems approach to cover continuous environmental improvement, building a corporate environmental profile and moving towards sustainability.

**1999 ♦ 280 pp. ♦ Paperback**  
**978-81-7371-157-2 ♦ ₹ 425.00**

### Dimensions in Environmental and Ecological Economics

*Sahu, Nirmal Chandra & Choudhury, Amita Kumari*

Environmental and ecological economics is a transdisciplinary branch of knowledge. It covers the study of the processes of simultaneity involved in the functioning of the economy and environmental/ecological systems, with a view to promote human well being sustainably. It is an applied branch, but its theoretical dimension is very powerful, as the issues it analyses constantly demand new concepts and insights.

Besides the paradigmatic bases of environmental, ecological and natural resource economics such as neo-classical, institutional and biophysical foundations, the scope of this book covers economic dimensions of and approaches to pollution, environmental and ecosystem management, biodiversity, global warming, energy and resource use, environmental evaluation and sustainable development. The book is planned to serve teachers and students at graduate and postgraduate levels, and also stimulate researchers.

**2005 ♦ 612 pp. ♦ Paperback**  
**978-81-7371-463-4 ♦ Print on demand**

### Tourism Management: The Socio-economic and Ecological Perspective

*Panda, Tapan K., Mishra, Sitikantha & Parida, Bivraj Bhusan*

*Tourism Management*, a compilation of articles by leading experts in the field, is an organised presentation of perspectives on tourism management in India. The chapters are written keeping in view the sensitivity needed for planning the growth of the tourism industry in India, given the complexity of the issues involved. This book—with its well-researched and documented chapters and its coverage of contemporary environmental issues—will be useful to tourism students, the hotel industry, the Ministry of Tourism, state governments and planners.

2003 ♦ 200 pp. ♦ Paperback  
978-81-7371-464-1 ♦ ₹ 250.00

## NATURAL HISTORY

### Birds in Our Lives

*Kothari, Ashish*

*Birds in Our Lives* provides glimpses of the incredible diversity of India's birds, the ecosystems where different kinds of birds are found, and the various ways, cultural and economic, in which birds have touched our lives. It gives a brief account of the history of ornithology in India. It stresses on the serious threats that bird habitats and populations face, and gives a sense of both the continued erosion of Indian birdlife, as well as the rapidly growing efforts to save it. Finally, it provides key pointers for what needs to be done if we want to save this precious natural heritage.

**Special features:** An extremely readable and technically accurate account of bird conservation in India • Written by one of India's most well-

known and outspoken conservationists Printed on art paper, with over 100 colour photographs

2007 ♦ 308 pp. ♦ Paperback  
978-81-7371-586-0 ♦ ₹ 625.00

### Birds: Beyond Watching

*Urfi, Abdul Jamil*

Birdwatching is reckoned to be an important tool for initiating the process of inquiry into the natural world. Birds are colourful, full of movement and diurnal. They capture the popular imagination well and are also important symbols of the conservation movement. In today's context, with natural habitats coming under increasing threat, there is a greater need for biodiversity monitoring, bringing about greater awareness for environmental concerns and action. In this regard, amateur birdwatchers are an important target group as they have a role to play, not only in the dissemination of information, but also in assisting professional conservationists in gathering data on bird distributions and abundance.

Clearly, there is also a need for a book which takes amateur birdwatchers beyond simply watching birds and treating them merely as objects of identification, much in the same way as a stamp collector does with his or her stamp collection. This book should acquaint birdwatchers, nature lovers, students of biodiversity (especially those from a non-zoology background but also those from a zoology background) with ecology, conservation issues, bird study principles, and above all the methods of observing and recording. This book is a departure from conventional books as it is written in a light, easy-to-read style, peppered with anecdotes.

2004 ♦ 240 pp. ♦ Paperback  
978-81-7371-485-6 ♦ ₹ 350.00

## BIODIVERSITY

### **Common Birds and Mammals of Andhra Pradesh, The**

*WWF-India*

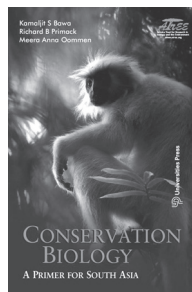
Exquisitely illustrated, this field guide to the common birds and mammals found in Andhra Pradesh describes 157 birds and 42 mammals that commonly occur in the state, with details of their characters, habits and habitat. The book also has information on ecosystems found in the state; areas listed as protected, with details on the location, accessibility, and the special features of the sanctuaries and national parks; checklists of birds from a few bird areas in the state; and the protected status of birds and mammals of Andhra Pradesh

**2009 ♦ 164 pp. ♦ Paperback**  
**978-81-7371-653-9 ♦ ₹ 275.00**

## NEW

### **Conservation Biology: A Primer for South Asia (First Edition)**

*Bawa, Kamaljit S., Primack, Richard B. & Oommen, Meera Anna*



This introductory book on conservation biology is based on Richard Primack's widely used *A Primer of Conservation Biology*. It explores the key concepts of conservation using examples from South Asia, home to some of the world's most exotic species that are now facing the threat of extinction. The book draws attention

to the rapid decline in the biodiversity of this region and emphasises the need for urgent action. It also discusses the initiatives that are being undertaken in the region such as involving local communities, framing laws and policies, and identifying research areas that will help stem further loss in biodiversity and make the long term goal of protecting our species successful.

**Special features:** Numerous case studies from South Asia • Discusses the involvement of indigenous tribes in preserving biodiversity • Outlines specific research areas that are to be focussed on for implementation of successful conservation programmes

**2011 ♦ 604 pp. ♦ Paperback**  
**978-81-7371-724-6 ♦ ₹ 595.00**

### **Field Days: A Naturalist's Journey through South and Southeast Asia**

*Johnsingh, A.J.T.*

Each of the thirty-seven articles in this book is a journey into a protected forest, some well-known and others rarely accessed. Nearly always, a long walk is involved, a walk that picks up details that an untrained eye would easily miss. Close encounters with temperamental tuskers, protective elephant mothers, reclusive tigers, poachers, villagers, tribal communities and forest guards pepper these walks. Dr Johnsingh's analyses include his deep concern for the tremendous challenge ahead if these places and their inhabitants are to be conserved in the face of an alarming onrush of humanity. Each journey, finally, involves a thoroughly enjoyable understanding of the protected area, its history, people, plants and wildlife.

**2005 ♦ 256 pp. ♦ Paperback**  
**978-81-7371-552-5 ♦ ₹ 395.00**

**M. Krishnan: Eye in the Jungle—  
Photographs and Writings**

*Chandola, Ashish &  
Shanthi with Perumal, T.N.A.*

M. Krishnan (1912–1996) was endowed with a wide range of interests and amazing prowess as a writer in both his native Tamil and English. He wrote on anything that caught his attention, from dog-shows to cricket, local breeds of cattle to temple carvings, squirrels in his backyard to elephants, gaur and mouse deer of the forests. He did not just write occasionally, but wrote steadily and inspiringly for well over 35 years.

A pioneer in the field of black & white photography, Krishnan’s contribution to wildlife photography and writing on natural history in India has no parallel. In this special compilation, an effort has been made to select lively and anecdotal text for which Krishnan has been recognised, to accompany images that he created which are in a class of their own.

**2005 ♦ 128 pp. ♦ Hardback  
978-81-7371-554-9 ♦ ₹ 1500.00**

**Marine Mammals of India**

*Sathasivam, Kumaran*

The intelligent dolphins, the giant whales and the inoffensive dugong or sea-cow are among the most fascinating creatures in the wild. Every aspect of their way of life is astonishing—some of them use sound to “see” in the water, some of them dive to incredible depths in search of food, and some of them sing complex songs. Marine mammals are so intriguing that worldwide there is a multi-million dollar industry in just watching these animals. Yet, in India, few are even aware that there are many of these creatures in the seas around the country—a full fourth of the world’s 120 or so species, in fact. This is due to the lack of information about them. Most existing records are scattered in various scientific journals. No

book published so far covers this group of Indian wildlife adequately.

This book is meant for a wide range of readers including children, wildlife enthusiasts and serious students. A significant part of the book is devoted to the more than 30 species accounts, which make the book a useful reference. Glimpses of their lifestyles are given through several essays dealing, for example, with the phenomenon of mass strandings of whales or the reputed ferocity of the killer whale. Further, colour illustrations and character matrices meant for easy identification make this book a useful field guide. The extensive bibliography makes the book a valuable research aid. The accounts of whaling and other threats faced by marine mammals highlight the conservation requirements of these animals.

**2003 ♦ 228 pp. ♦ Paperback  
978-81-7371-465-8 ♦ ₹ 475.00**

**Marine Turtles of the Indian Subcontinent**

*Shanker, Kartik & Choudhury, B.C. (Eds.)*

Marine turtles become accessible to humans for brief episodes in their life history, when they leave the open oceans and lumber onshore to nest. These giant air-breathing turtles belong to the most ancient line of living reptiles; however, poaching and egg depredation, development along ocean and coastal zones, and the rapid expansion and mechanisation of the fishing sector in the last few decades have severely endangered these tenacious survivors.

Five of the world’s seven species of marine turtles occur on the Indian subcontinent. Many of these form part of regionally or globally important populations. Unfortunately, information for most sites and populations is unavailable or outdated, deriving from the initial path-breaking surveys that were conducted between the early ’70s and ’90s.

## BIODIVERSITY

A GOI–UNDP-sponsored project was carried out between 2000–02 to update information on the status of India's marine turtles and to provide an impetus to participatory conservation. This book documents the results of surveys carried out under that Sea Turtle Project.

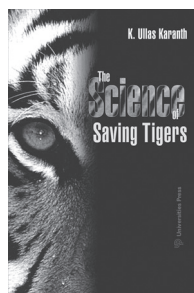
*Distributed worldwide (except India) by CRC Press LLC, USA, part of the Taylor and Francis Group.*

**2006 ♦ 452 pp. ♦ Paperback**  
**978-81-7371-566-2 ♦ ₹ 475.00**

## NEW

### **Science of Saving Tigers, The (First Edition)**

*Ullas Karanth, K*



The Science of Saving Tigers puts together twenty significant articles on topics ranging from tiger ecology to critiques of government policy from a selection of over seventy that have appeared in various national and international journals, spanning Dr Karanth's work over two decades. It is essential reading for serious students of conservation biology and will serve as a vital information resource for tiger conservationists in particular.

**2011 ♦ 340 pp. ♦ Paperback**  
**978-81-7371-609-6 ♦ ₹ 550.00**

### **Spiders of India**

*Sebastian, P.A. & Peter, K.V. (Eds.)*

*Spiders of India* is the only modern book available on the subject, and will prove an invaluable resource for professionals, students, naturalists, and researchers in zoology, entomology, ecology and physiology. The first part of the book looks at the morphology and anatomy of spiders, as well as systematics and evolution. The second part provides detailed descriptions of selected species. The book also contains, importantly, a decisive and updated checklist of the 1,520 spiders which are found in India. It is richly illustrated with line drawings and diagrams, and more than 150 colour photographs, many documented for the first time.

**2009 ♦ 736 pp. ♦ Hardback**  
**978-81-7371-641-6 ♦ ₹ 1450.00**

### **State of the Earth, The**

*Conkin, Paul K.*

In *The State of the Earth*, noted historian Paul K. Conkin provides a comprehensive analysis of the many environmental hazards that humans must face in this still-young century. Our activities have threatened the survival of many plants and animals, created scarcities in cultivatable soils and water needed for irrigation, used up a large share of fossil fuels, polluted air and water, and most likely created the conditions that will lead to major climate changes. Conkin not only evaluates the challenges but recognises the successes of concerned individuals and organisations in creating awareness and in supporting policies that will best preserve a healthy earth. The book is an invaluable resource for those who desire a broad yet thorough and scientifically informed introduction to present environmental challenges.

**2008 ♦ 320 pp. ♦ Paperback**  
**978-81-7371-592-1 ♦ ₹ 450.00**

**Survival Strategies: Cooperation and Conflict in Animal Societies***Gadagkar, R.*

Did you know that Tasmanian hens have two husbands? That vampire bats will share food with hungry fellow bats and that Hanuman langurs commit infanticide? Why creatures, great and small, behave in such fascinating and seemingly perplexing ways is explained in this delightful account of the evolutionary foundations of animal social behaviour. Illustrated with both photographs and explanatory diagrams, this expert and inviting tour of the social world of animals will inform and charm anyone curious about the motivations behind the amazing range of activity in the animal kingdom.

**1998 ♦ 192 pp. ♦ Paperback**  
**978-81-7371-114-5 ♦ ₹ 195.00**

**Way of the Tiger, The***Karanth, Ullas K.*

This book tells you everything you want to know about tigers. It is an outstanding primer on tigers and very simply and well-written. The author talks about the human fascination for tigers, and then examines the social and predatory behaviour in wild tigers; evolution and genetics; research and census methods; threats, past and present, to the existence of this endangered mega-carnivore; and various conservation policies necessary to reverse the decline of tigers. What sets it apart is the positive conservation message that underlines the text; the author disagrees with 'doomsday prophecies' and convincingly argues that wild tigers can be saved with timely action guided by reliable knowledge.

**2006 ♦ 144 pp. ♦ Paperback**  
**978-81-7371-556-3 ♦ ₹ 195.00**

**Amphibians of Peninsular India***Daniels, R.J. Ranjit*

This work introduces laypersons, naturalists and students of biology to the field study of amphibians. It discusses the biology and ecology of amphibians in general and provides an updated checklist of Indian amphibians. It illustrates over 75 species of Indian amphibians including caecilians, frogs, toads and tree frogs, providing details of their taxonomy, appearance, call and natural history.

For the first time, an illustrated key has been developed in a simple style for Indian amphibian families and genera. It provides suggestions for students to undertake projects and methodology for the same. It could be recommended for reading at undergraduate and postgraduate levels. All universities offering courses in zoology, wildlife biology, ecology and taxonomy will find the book useful.

**2004 ♦ 284 pp. ♦ Paperback**  
**978-81-7371-514-3 ♦ ₹ 425.00**

## BIODIVERSITY

### **Butterflies of Peninsular India**

*Kunte, Krushnamegh*

This book represents the first fascicle in this series. This important new work of reference is also a joy to look at and a pleasure to read, combining comprehensiveness, consistency of style and beauty to this degree. Ancillary information on distribution, ecology and behaviour will help design field exercises and projects focussing on first-hand observations of living organisms. This essential source of visual and factual reference is an indispensable book for everyone who cares about nature, and will stimulate popular interest in the broader spectrum of India's biological wealth.

**2000 ♦ 272 pp. ♦ Paperback**  
**978-81-7371-354-5 ♦ ₹ 595.00**

### **Fresh Water Fishes of Peninsular India**

*Daniels, R.J. Ranjit*

This is a lucidly written field guide describing 75 taxa of fishes that commonly inhabit the fresh waters of Peninsular India. It can serve as a good addition to the existing biology textbooks, as many of the species have not been studied until now. The book is lavishly illustrated with black and white illustrations, line drawings, as well as colour photographs. Common English and local names are given in addition to scientific nomenclature for the fishes.

**2001 ♦ 224 pp. ♦ Paperback**  
**978-81-7371-409-2 ♦ ₹ 450.00**

## TEXTBOOKS

### **Dimensions of Molecular Entomology**

*Ananthkrishnan, T.N.*

Entomology is the study of insects. This book is about the need to find solutions to the problems that insects cause to plants and crops. In recent years, biochemistry, genetics and molecular biology have become essential to the understanding of these problems. Using the molecular biology approach, one can now transfer and evaluate genetic characteristics from many insects. This book emphasises the need for and relevance of studying the molecular aspects of entomology in traditional universities, agricultural universities and other centres of molecular research.

The contributors are drawn from across renowned agricultural institutions in India.

**2007 ♦ 172 pp. ♦ Paperback**  
**978-81-7371-576-1 ♦ Print-on-demand**

### **Environmental Science and Engineering**

*Debi, Aloka*

*Environmental Science and Engineering* has been specially designed to explain what the environment is, how it is polluted and destroyed, the effects of pollution, and how effectively damage to the environment can be controlled.

The book; discusses the acts and laws that govern pollution; provides a number of relevant case studies to highlight the environmental problems; provides extensive exercises; is based on the undergraduate syllabus prescribed by the UGC; can be used by engineering students.

**2008 ♦ 220 pp. ♦ Paperback**  
**978-81-7371-608-9 ♦ ₹ 195.00**

### Questions and Answers in Environmental Science

*Basu, S.K. & De, A.K.*

- What are the functions of an ecosystem?
- What is minor forest produce?
- Define watershed.
- What is composite disaster mapping?
- Name some alternate sources of energy.
- What is demographic stochasticity?
- What makes the Ramsar Convention significant?

The sustainable future of humanity lies in understanding the earth and its environment. For this reason, environmental science has a purview that overlaps several other disciplines; from biology to economics, geology to sociology, every subject has a significant relationship with some area of environmental science. However, it is often difficult, time-consuming and exhaustive to keep pace with new trends in such a broad-based field.

This compact book uses brief entries packed with information to answer more than 1,500 questions that form the core of environmental studies. Though the chapters are sorted by subject, the reader can move freely between questions in order to best understand the inter-connections that shape this topic.

*Questions and Answers in Environmental Science* also includes a section with multiple-choice questions, fill in the blanks and match the columns that will help test one's reading of the subject.

**2005 ♦ 396 pp. ♦ Paperback**  
**978-81-7371-547-1 ♦ ₹ 295.00**

### Textbook of Environmental Studies for Undergraduate Courses

*Bharucha, Erach*

The importance of environmental studies cannot be disputed since the need for sustainable development is a key to the future of mankind. Recognising this, and the deteriorating status of the environment, the Honorable Supreme Court of India directed the University Grants Commission (UGC) to introduce a basic course on environmental education for undergraduate courses of all branches of higher education, to be implemented by every university and college in the country. Accordingly, the UGC constituted an Expert Committee to frame a 6-month Core Module Syllabus for environmental studies. This textbook is the outcome of the UGC's efforts. It has been prepared as per the Core Module Syllabus and is designed to bring about an awareness of a variety of environmental concerns.

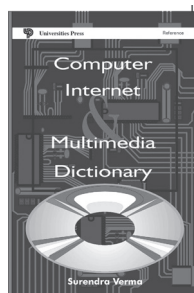
**2005 ♦ 296 pp. ♦ Paperback**  
**978-81-7371-540-2 ♦ ₹ 150.00**

## REFERENCE

### DICTIONARIES

#### Computer, Internet and Multimedia Dictionary

Verma, S

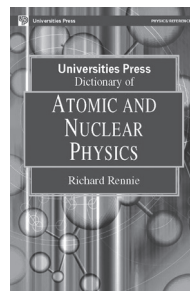


This dictionary covers the core of Information Technology featuring about 3500 entries on computing, telecommunications, and digital electronics. It also covers the Internet and World Wide Web technologies and includes important people, machines and events in the history of computing, and provides glimpses of latest discoveries/inventions of the 21st Century.

**1998 ♦ 256 pp. ♦ Paperback**  
**978-81-7371-091-9 ♦ ₹ 295.00**

#### Universities Press Dictionary of Atomic and Nuclear Physics

Rennie, Richard



*Universities Press Dictionary of Atomic and Nuclear Physics* contains more than 2000 entries that explain, clearly and concisely, the most relevant and frequently used terms associated with atomic and nuclear physics. An ideal tool, the dictionary articulates the scope of modern research and discoveries in particle physics, questions of philosophical interest, and applications for nuclear physics in nuclear energy and nuclear medicine.

Among the many topics covered are  
❖ absolute temperature ❖ kinetic theory  
❖ singularity ❖ magnetism ❖ spectroscopy  
❖ cathode ray ❖ plutonium ❖ transmutation  
❖ half-life ❖ resolving power ❖ valence bond theory ❖ hydrogen molecule

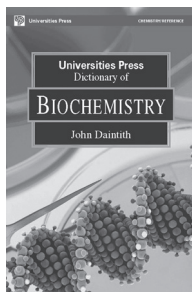
More than 40 line drawings and a set of appendices (including a bibliography) help to illustrate many complex concepts, and cross-references guarantee that the reader will waste no time in finding the right definition.

**2006 ♦ 256 pp. ♦ Paperback**  
**978-81-7371-536-5 ♦ ₹ 205.00**

Prices are subject to change without notice

**Universities Press Dictionary of Biochemistry**

*Daintith, J.*



*Universities Press Dictionary of Biochemistry* contains more than 2,000 entries that explain, clearly and concisely, the most relevant and frequently used terms in the field of biochemistry. The dictionary is an ideal tool, articulating the basics of modern biochemistry, including basic organic and physical chemistry, cell metabolism and signaling, nutrition, and recent advances in the field.

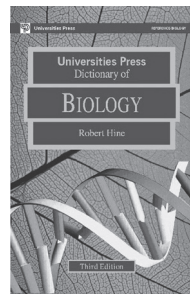
Among the many topics covered are; amino acids; light reactions; protein synthesis; dehydration; metamorphosis; secretion; gene cloning; nitrogen cycle; transpiration; immunization; pollution; vaccination.

More than 60 line drawings and a set of appendices (including a bibliography) help to simplify many complex concepts, and cross-references guarantee that the reader will waste no time in finding the right definition.

**2006 ♦ 256 pp. ♦ Paperback**  
**978-81-7371-539-6 ♦ ₹ 205.00**

**Universities Press Dictionary of Biology (Third Edition)**

*Hine, Robert (Ed.)*



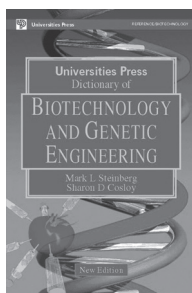
Extensively revised and expanded, the *Universities Press Dictionary of Biology* contains approximately 3,000 entries that explain, clearly and concisely, the most frequently used terms in the biological sciences. More than 200 new terms reflect the many advances in genetics, cell biology, and biochemistry. An extensive Appendix contains information about the animal kingdom, the plant kingdom, and amino acid structures. Almost 50 line drawings illustrate complex biological concepts, and extensive cross-references guarantee that no user will waste time searching for the right definition.

**2000 ♦ 368 pp. ♦ Paperback**  
**978-81-7371-299-9 ♦ ₹ 295.00**

## DICTIONARIES

### **Universities Press Dictionary of Biotechnology and Genetic Engineering** (New Edition)

*Steinberg, Mark L. & Cosloy, Sharon D.*



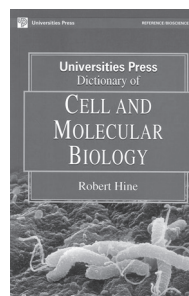
Revised and expanded by more than 300 new terms, the *Universities Press Dictionary of Biotechnology and Genetic Engineering, New Edition* is an essential reference tool on modern biotechnology and genetic engineering that lucidly articulates the flood of advances and discoveries in these areas.

In addition to 100 black-and-white line drawings, the dictionary includes four helpful appendixes. The dictionary will benefit students, teachers, physicians, science and technical writers, and others looking for a concise source of current information on these interdisciplinary fields.

**2003 ♦ 240 pp. ♦ Paperback**  
**978-81-7371-447-4 ♦ ₹ 225.00**

### **Universities Press Dictionary of Cell and Molecular Biology**

*Hine, Robert*



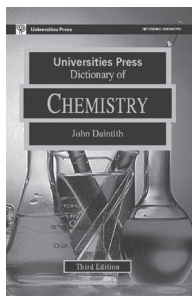
*Universities Press Dictionary of Cell and Molecular Biology* contains more than 2,000 entries that explain, clearly and concisely, the most relevant and frequently used terms in one of the most fascinating areas of contemporary biosciences. The dictionary is an ideal tool, articulating modern cell and molecular biology, including cell structure, molecular genetics, cell metabolism, cell physiology, and laboratory techniques. Among the many topics covered are: • AIDS • HIV • parthenogenesis • chromosome map • lymphatic tissue • spore • endorphin • molecular weight • transplantation • fission • nitrification • vascular tissue

More than 60 line drawings and a set of appendixes (including a bibliography) help to simplify many complex concepts, and cross-references guarantee that the reader will waste no time in finding the right definition.

**2006 ♦ 256 pp. ♦ Paperback**  
**978-81-7371-537-2 ♦ ₹ 205.00**

**Universities Press Dictionary of Chemistry**  
(Third Edition)

*Daintith, J. (Ed.)*

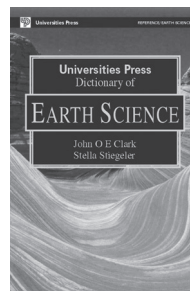


Extensively revised and expanded, this dictionary contains approximately 3,000 entries that explain, clearly and concisely, the techniques, materials, applications, and specialised uses of everyday chemical terms. More than 250 new terms reflect modern chemical nomenclature and the most up-to-date information on properties of the elements. An extensive appendix contains information about the chemical elements, fundamental constants, elementary particles, the periodic table, the Greek alphabet, and other often-consulted information. More than 50 line drawings illustrate many complex structures, and extensive cross-references guarantee that no user will waste time searching for the right definition.

**2000 ♦ 272 pp. ♦ Paperback**  
**978-81-7371-298-2 ♦ ₹ 250.00**

**Universities Press Dictionary of Earth Science**

*Clark, J.O.E. & Stiegeler, Stella*



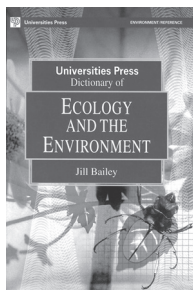
The *Universities Press Dictionary of Earth Science* contains more than 3,000 entries that explain, clearly and concisely, the most frequently used terms in Earth science. Given the constant and often unexpected changes in our global environment, the dictionary is an ideal resource for understanding how these events impact our planet and our lives. More than 100 line drawings illustrate many complex concepts, and extensive cross-references guarantee that no student, teacher, or Earth science professional will waste time searching for the right definition.

**2003 ♦ 362 pp. ♦ Paperback**  
**978-81-7371-446-7 ♦ ₹ 225.00**

## DICTIONARIES

### Universities Press Dictionary of Ecology and the Environment

Bailey, Jill



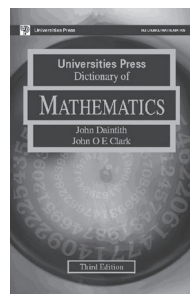
This dictionary contains more than 2000 entries that explain, clearly and concisely, the most relevant and frequently used terms associated with the subjects. An ideal resource, the dictionary articulates the scope of modern research and discoveries in the Earth's natural and artificial components, the atmosphere, the biosphere, and human population dynamics. Among the many topics covered are: • acid rain • nuclear energy • biodiversity • pollutant • deforestation • resource management • global warming • smog • halon • waste disposal • life cycle • wildlife management

More than 30 line drawings and a set of appendixes (including a bibliography of print and Web resources) help to simplify many complex concepts, and cross-references guarantee that the reader will waste no time in finding the right definition.

**2006 ♦ 256 pp. ♦ Paperback**  
**978-81-7371-538-9 ♦ ₹ 205.00**

### Universities Press Dictionary of Mathematics (Third Edition)

Daintith, J. & Clark, J.O.E. (Eds.)



Extensively revised and expanded, the dictionary contains approximately 3,000 entries that explain, clearly and concisely, the most important and commonly used terms in every branch of mathematics. More than 200 new terms increase coverage of applied mathematics and computer science. An extensive appendix contains information about conversion factors and formulas. Almost 100 line drawings illustrate complex concepts, and extensive cross-references guarantee that no user will waste time searching for physical quantities, units of measure, conversion factors, formulas, important constants, and the Greek alphabets.

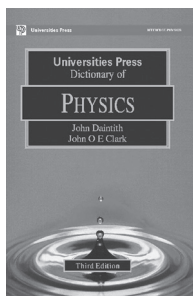
**2000 ♦ 248 pp. ♦ Paperback**  
**978-81-7371-300-2 ♦ ₹ 235.00**

GENERAL INTEREST

GENERAL INTEREST

**Universities Press Dictionary of Physics**  
(Third Edition)

*Daintith, J. & Clark, J.O.E. (Eds.)*

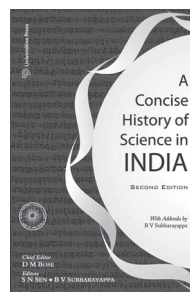


Extensively revised and expanded, this dictionary contains approximately 3,000 entries that explain, clearly and concisely, the most important and commonly used terms relating to all aspects of physical science. More than 200 new terms reflect new developments in the areas of particle physics, cosmology, low-temperature physics, and quantum theory. An extensive Appendix contains information about chemical elements, symbols for physical quantities, useful conversion factors, and other often-consulted information. More than 80 line drawings illustrate many complex physical principles, and extensive cross-references guarantee that no user will waste time searching for the right definition.

**2000 ♦ 256 pp. ♦ Paperback**  
**978-81-7371-301-9 ♦ ₹ 225.00**

**Concise History of Science in India, A**  
(Second Edition)

*Bose, D.M. Sen, S.N., Subbarayappa, B.V. (Ed.)*



India's contributions in the field of science have been very influential in the development of human civilisation. The decimal place value system and the Ayurvedic way of life are just two well-known legacies of this ancient culture. Yet there are only a few books which provide an unbiased and authentic view of this world. One reason for this is that the study of Indian science through the ages involves the complex integration of the knowledge of many languages and diverse scientific disciplines. Through the years, there has been growing interest in this study as an important aspect in understanding man's interaction with nature, his material life and cultural patterns. The Indian National Science Academy, through its History of Science Board (1958) and the National Commission for the Compilation of History of Sciences in India (1967) renamed in 1989 as the Indian National Commission for History of Science sought further means to stimulate this interest among universities and scholars. The result was the publication of *A Concise History of Science in India*.

This book attempts to present a brief account of the development of science from early times to Independence, in one of the most ancient civilisations of the world. After

## GENERAL INTEREST

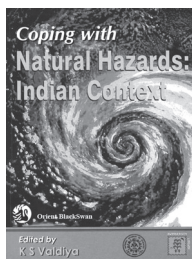
nearly four decades since its publication, *A Concise History of Science in India* remains one of the most extensive and authentic account of Indian science through the ages. Yet further studies in the field have brought to light new material. This revised edition, taken up by B V Subbarayappa, one of the three original editors, seeks to integrate the new information with the knowledge already at hand.

**2009 ♦ 980 pp. ♦ Paperback**  
**978-81-7371-619-5 ♦ ₹ 995.00**

**2009 ♦ 980 pp. ♦ Hardback**  
**978-81-7371-618-8 ♦ ₹ 1350.00**

### **Coping with Natural hazards: Indian Context**

*Edited by Valdiya, K S*



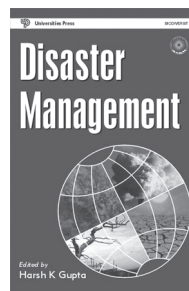
*Coping with Natural hazards: Indian Context* embodies a collection of scientific papers, each by an eminent and acknowledged authority, on various natural hazards that have been causing disasters and distresses with increasing severity. These papers were presented and discussed at a national symposium in October 2001 organised at Pune by the National Academy of Sciences, Allahabad. In addition to describing causes and effects of various disastrous natural phenomena, the papers dwell on such aspects as environmental security, strategies for disaster mitigation, public policy for hazard management, and general awareness programmes. An added attraction is a series of recommendations by the participants

on hazard preparedness plans, laws relating to strengthening of buildings and infrastructure, and developing early warning systems.

**2004 ♦ 284 pp. ♦ Paperback**  
**978-81-250-2735-5 ♦ Print on demand**

### **Disaster Management**

*Gupta, Harsh K. (Ed.)*



This book contains seven chapters, each dealing with one major natural disaster encountered in our country. Each of the authors is an expert in that particular field. The outstanding contribution of this book is that it not only deals with the forecasting and description of the various natural disasters, but also stresses on the management aspect, exhaustively detailing the necessary steps that need to be taken to deal with the fallout in the wake of these disasters. The book also describes the advances in remote sensing and the state-of-the-art technology available in India for the monitoring and prediction of these phenomena. It also draws up a comprehensive warning system to be implemented, in order to minimise the extensive losses to life and property that occur year after year.

**2003 ♦ 188 pp. ♦ Hardback**  
**978-81-7371-456-6 ♦ ₹ 470.00**

## Disaster Management: Global Challenges and Local Solutions

Shaw, Rajib & Krishnamurthy, R.R. (Ed.)



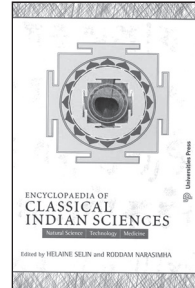
We are becoming increasingly vulnerable to natural disasters. Disaster management is therefore an important topic for all—from high school students to researchers. Disaster data in recent years show increasing trends in physical, social and economic impacts. While a global perspective of disaster management is necessary, it is also important to emphasise local solutions. This book targets some of the key issues of disaster management, focussing on innovative research and application. The chapters are organised under 5 interrelated themes: • Hazards and disasters • Risk and vulnerability • Technology • Education and community • Crosscutting issues. It will serve as an up-to-date reference book for researchers and practitioners in the field of disaster management throughout the world. This book will be useful for students, teachers, researchers and practitioners in the field of disaster management. It is an invaluable resource for faculty of departments of geology and environmental science students of geology and environmental science

*Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group*

**2009 ♦ 664 pp. ♦ Paperback**  
**978-81-7371-656-0 ♦ ₹ 1200.00**

## Encyclopaedia of Classical Indian Sciences

Selin, Helaine & Narasimha, Roddam



India's contributions to science and technology are among the most ancient and influential in the world. In mathematics, the decimal place value system with zero as a numeral, used universally today, owes its origin to India. The science of Ayurveda, which has been practised for millennia in India, is now gaining wider acceptance even as many ancient remedies are turned into modern drugs. Indian astronomical computations, ritual geometry, brick technology and metallurgical innovations have been among the finest achievements in the world of science and technology.

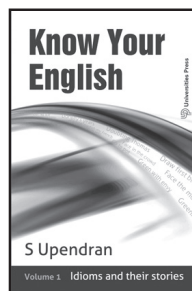
*Encyclopaedia of Classical Indian Sciences* is an attempt to provide an authentic account of natural science, technology and medicine as practised by Indians and other South Asians. It also includes biographical articles on many ancient Indian scientists, and some articles (polemic in nature) on the history of Indian science and technology, such as the essay on the effects of colonialism. All articles are contributions of acknowledged authorities on their subject drawn from across the world.

**2007 ♦ 492 pp. ♦ Hardback**  
**978-81-7371-555-6 ♦ ₹ 1025.00**

**Kariamanikkam Srinivasa Krishnan: His Life and Work***Mallik, D. C. V., Chatterjee, S.*

The first four decades of the 20th century were glorious years for science, especially physics. Our view of the physical world changed forever with the emergence of quantum mechanics and Einstein's formulation of the theory of relativity. India too contributed significantly to this scientific revolution with the discoveries made by S N Bose, C V Raman and M N Saha, all in the space of about a decade. Kariamanikkam Srinivasa Krishnan (1898- 1961) belonged to the same illustrious group. He was perhaps the only Indian physicist of his generation who was equally adept in theory and experiment. Besides a life of excellence in science, Krishnan's destiny led him to become an able science policy maker and administrator; innately he was a great teacher, a humanist and a scholar of Sanskrit, Tamil literature and philosophy.

This biography, besides being a detailed and meticulously documented account of Krishnan's life and his scientific work, is also an exciting account of the history of Indian science of the period. The source material of this work, most of which are being used for the first time, comes from the private papers of K S Krishnan that had remained in the custody of his family.

**Know Your English Volume 1***Upendran, S.*

Idioms and their Stories is the first of a four volume series, based on the popular column, Know Your English, which has been a regular feature in The Hindu since 1982.

Teachers, students, and those who are keen on honing their speaking and writing skills will find the series useful. This volume contains a selection of more than 300 idioms, and each entry gives the meaning of the idiom, provides examples of its use, and wherever possible, traces its origin.

**2011 ♦ 216 pp. ♦ Paperback**  
**978-81-7371-729-1 ♦ ₹ 195.00**

## ══════ FORTHCOMING ══════

### **Paths of Innovators** (Volumes I and II)

*Parthasarathy, R.*

This book contains a collection of scientists' lives, their struggles, their achievements and their laurels. They have been grouped under five disciplines Engineering, Physics, Mathematics, Chemistry and Life Sciences. The aim of these brief biographical sketches is to inspire a wider audience to take up the noble pursuit of pure sciences.

In science, a spectacular achievement is remembered but the foundation on which the achievement was based is often forgotten; Dr Parthasarathy reminds us of this basic fact. The scientists selected by the author span several centuries and almost all the persons who laid the foundation of modern science and built its edifice are there. This is a storehouse of information, there is almost nothing in it, which is not interesting—R. Chidambaram (Principal Scientific Advisor to the Government of India and DAE–Homi Bhabha Professor).

### **Shaping of Indian Science, The** *ISCA-Indian Science Congress Association* *Presidential Addresses*



These are a compendium of the speeches of the Presidents of the Indian Science Congress Association (ISCA) from 1914–2003. Through the years, these Presidents have inspired the Congress by their speeches—some of them visionary, some impassioned in their plea for Science, but all of them with a message that Science must be used for the good of the human race. The Presidents have been eminent personalities in the world of Science and have left their mark on the course of Science in India. This series was inspired by the belief that these luminaries deserved greater coverage in a reference source devoted exclusively to providing their messages and brief biographical sketches, in the hope that they will inspire a wider audience to take up the noble pursuit of Science.

#### Volume 1

2003 ♦ 592 pp. ♦ Hardback  
978-81-7371-432-0 ♦ Print on demand  
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#### Volume 2

2003 ♦ 704 pp. ♦ Hardback  
978-81-7371-433-7 ♦ Print on demand  
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#### Volume 3

2003 ♦ 788 pp. ♦ Hardback  
978-81-7371-434-4 ♦ Print on demand  
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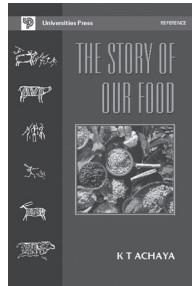
#### **Volume 4:**

**2010 ♦ 111 pp. ♦ Paperback**  
**978-81-7371-708-6 ♦ Print on demand**

## GENERAL INTEREST

### Story of Our Food, The

Achaya, K T



- Our distant ancestors speared animals for food. How do we know this?
- Why did vegetarian habits develop so long ago only in India?
- Why were food, health and natural elements considered if separable?
- What do the words hot and cold, when applied to food, mean in India?
- How old are idli, the vada and curd-based shrikand?
- When and where did the mango originate? And the papaya?
- Why were chillies not used in Akbar's kitchen?
- What was India's first beverage—coffee or tea?

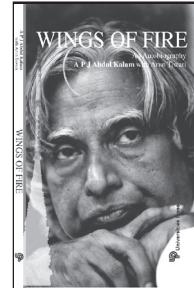
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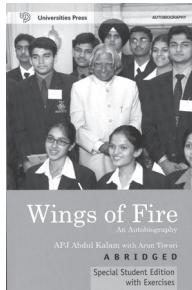


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