

Engineering Physics. Sanjay D. Jain and Girish G. Sahasrabudhe. Universities Press (India) Private Limited, Hyderabad 500 029. 2010. xiv + 594 pp. Price: Rs 375.

There is no dearth of books in physics for the first year students of the engineering degree programmes in India. However, this new book by Sanjay Jain and Girish Sahasrabudhe comes as a whiff of fresh air. Unlike many other books, it is unusually well written and has the imprint of the long years of teaching experience of the two authors. The book under review has several welcome features such as crisp language with few grammatical errors, good choice of topics, adequate coverage of the subject matter meant for freshman students, good diagrams, very good selection of numerical examples, good exposition of laboratory experiments and excellent use of charts and tables to highlight important ideas and conclusions.

The inclusion of historical aspects in each of the advances in physics, along with the names of the scientists, is particularly noteworthy. This is not emphasized in most text books and consequently, students do not even know the names of many of the famous physicists. The students are, thus, deprived of a great source of inspiration for their future careers. I would have liked to see the full names of the scientists mentioned in the text where they occur first, with some more information as footnotes. I noted that some of the names have incorrect spelling; for example, 'Lummer' on page 161, 'Charles Townes, Arthur Shawlow and Theodore Maiman' on page 489 and 'Meissner' on page 344. In many places the initials for the names are not separated by full-stops. On page 343, the year mentioned against the name of Ampere is

1875 – it should be 1775! Of course, such errors do not dent the quality of the overall presentation in the book.

I wish to commend the authors for writing the first chapter, from which students can get a glimpse of the umbilical cord between physics and engineering. I was very happy to see the clarity in the exposition of physical concepts and laws throughout the book. The depth of coverage is just about right for the first year students. It should keep the students interested in physics in their further studies. I am particularly impressed by the set of problems, solved as examples, in each chapter. These examples successfully illustrate the power of the theoretical ideas presented in the main text. The use of charts and tables to summarize the major ideas and conclusions is indeed very effective.

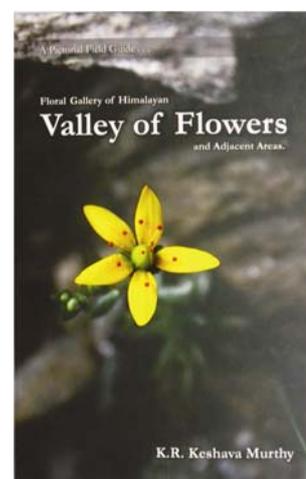
It was a pleasure to read the chapters on Light and Optics. The detailed description of the theory related to typical experiments in the Optics Laboratory should be of great help to the students; this comment is true for the experiments described in other chapters too. However, some of the diagrams could have been drawn better; examples are figures 3.11, 3.13 and 3.17. The next few chapters on Quantum Physics, Atomic Physics and Nuclear Physics are well written. On page 270, a very good historical account of developments in materials science is presented, but I wish the authors had mentioned the years when some of the major techniques such as electron microscopy, NMR and Mössbauer spectroscopy were invented. On page 491, Einstein's coefficients are erroneously described; they should be mentioned as A_{21} , B_{12} and B_{21} . The last line of the same page mentions 'spontaneous absorption' which I believe is not correct. Absorption of light by atoms/molecules is always assisted by the photons present. It is also good to point out that spontaneous emission is really a source of noise in laser radiation.

In summary, Jain and Sahasrabudhe have written an excellent book for the undergraduate students of engineering programmes. It is not possible to cover all the major domains of physics in a book meant specifically for a one (or two) semester course. In fact, topics such as the special theory of relativity and thermal physics are left out. Nevertheless, this book retains its value as a very good text book. I am sure some of the

errors would be removed in the next edition. This text book would be valuable to both students and teachers; that includes me too!

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Floral Gallery of Himalayan Valley of Flowers and Adjacent Places. K. R. Keshava Murthy. 2011. 339 pp. Price: Rs 950. ISBN: 978-81-8464-438-7.

The Valley of Flowers National Park, nestled high in the Western Himalayas has been a place of pilgrimage for nature lovers and for botanists of the world. This book by K. R. Keshava Murthy, a taxonomist of repute, is a pictorial field guide. The book under review is a result of hard work is amply reflected by the content, design and production quality of the pages.

The Valley of Flowers is located in the freezing environment of the high-altitude Himalayas. It is covered under snow through much of the year, and thus remains inaccessible. If one were to study and visually document the flowers, considerable and sustained efforts in terms of visiting the landscape every season is necessary. Keshava Murthy, as indicated in this book, has spent three seasons in Chamoli District, Uttarakhand, photogra-

phing the splendid flowers of the park and surrounding areas like Hemkund, Badrinath, Neelkant base, Mana village and Vasundhara.

The book is well researched and accurate in its scientific content, providing valuable information on 287 species of plants belonging to 190 genera and 63 families. As can be expected, the photographs, which are primarily meant for identification, though pleasing to the eye, do not reflect the ethereal beauty of the flowers in all cases. The description of 10 important landmarks in the valley along with details on topography, and what to expect in terms of plants is useful. The places of interest around the Valley of Flowers, the history of the Bhyundar Valley, along with reference to Hindu mythology, and the explorations conducted by eminent botanists of the past are succinctly written. The strength of this book is that it serves not only as a field guide, but is also a scholarly piece of work that could serve the purpose of a reference book.

To further enhance the merit of the book, the author may consider the following points while publishing the next edition. To begin with, the exclusive and endemic nature of the flowers described in the book, and also the 'must see' flowers for a nature lover may be mentioned in detail in the Foreword. The Foreword may also include the author's insight into the conservation aspects of the park and recommendations towards better management of this World Heritage Site, so that the alpine meadows and the surrounding mountains continue to sustain the myriad plants that produce beautiful and elegant flowers.

The book, by its sheer excellence, reiterates the megadiverse status of India. However, it is a pity that despite the literary merit of the book and the quality of photographs, the author has had to invest his resources to publish this book. In his introduction to the author, M. Sanjappa, Director, Botanical Survey of India informs us that Keshava Murthy has spent his own money for travelling, stay and documentation, without financial assistance from the Government or any NGO.

It is not endearing for an academician to invest money in publication, involve oneself in the nitty-gritty of printing, and take on the onerous task of selling one's own book. The occasional news in the media about authors getting astronomical sums as advance for a literary

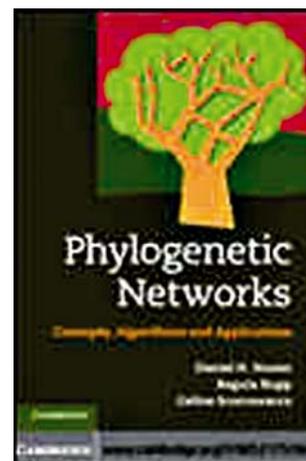
work might make us believe that there has been an overwhelming change in the business of book publishing in India, but it does not seem to be the case, at least not in the field of biological sciences. I have friends who have authored several books on ecology, ornithology, nature, wildlife biology, etc., published by international publishing houses, but as authors they have not made much money. Worse still, it is difficult to convince the established publishing house about the merits of one's book, and hence it is impossible for a new author to gain entry into the exalted portals of such publishing houses.

It is futile to criticize, appeal, or extol the publishing houses to encourage new authors or part with greater portions of their profit to the authors, as people in the business of making money know what sells, and shall continue to have the prerogative of whom to encourage or promote. In the present case, the Ministry of Environment and Forests, Government of India, or the Wildlife Wing of the Forest Department, Government of Uttaranchal may consider publishing the second edition on the book, as it serves their purpose of conservation and also ecotourism.

There are several autonomous bodies in India under the aegis of State and Central Governments, many of which have made a name for themselves. In the field of biological sciences, the Bombay Natural History Society and the Wildlife Institute of India, are among a few such institutions. However, by counting the number of books that these reputed institutions have published over the years, one realizes that they are too conservative in publishing books. These reputed institutions should seek out authors, publish quality books, and ensure that the authors are given their due, and thus create an environment for people like Keshava Murthy to channelize their energies in bringing out more number of such useful books.

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Phylogenetic Networks: Concepts, Algorithms and Applications. Daniel H. Huson, Regula Rupp and Celine Scornavacca. Cambridge University Press, 2011. 376 pp. Price: £ 35.

Evolutionary relationships among organisms are illustrated by means of a phylogenetic tree. Although several evolutionary processes such as horizontal gene transfer and recombination do not fit in complete agreement with the phylogenetic tree hypothesis, they can be treated in a biologically meaningful way by using phylogenetic or evolutionary networks.

The book under review is the most comprehensive one on the subject of computational phylogenetic networks. Each chapter describes the related aspects of phylogenetic networks in a connected manner. The text deals with phylogenetic networks through independent but connected sub-topics such as models of evolution concerned with molecular evolution, and splits and clusters concerned with statistical techniques. This is the main strength of the book and would help a novice easily understand the subject.

Another important aspect of this book is the treatment of mathematical and computational models and methods for phylogenetic networks. One of the chapters (chapter 4) describes myriad phylogenetic networks and throws light on the current state of affairs in these networks. Also focused in some chapters are the various mathematical and statistical techniques and their computable relevance to phylogenetic networks. Several graph-theoretic algorithms are also described.

An interesting feature is the inclusion of some old techniques in phylogenetic