

Book review

Planetary Science: The Science of Planets around Stars, by George H. A. Cole and Michael M. Woolfson, Second edition, CRC Press/Taylor & Francis Group, 2013; ISBN: 978-1-4665-6315-5 (paperback)

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Nowadays, planets and planetary science are becoming more and more popular not only among professional astronomers, but also among amateurs. Such a trend is caused by a growing number of projects dedicated to searches for planets and missions focusing on studies of the environment on the nearest planets. This, in turn, leads to the increasing number of books and papers on these topics.

One of these books is the second edition of “Planetary Science: The Science of Planets around Stars”, by George H. A. Cole and Michael M. Woolfson. This position is rather dedicated to first-level students or amateurs not well familiar with planetary science. The description of planetary topics is exhaustive for recipients to whom the book is addressed.

The well organized, unconventional content of the book starts with a list of figures and an introduction. The latter is rather short and simple, concentrating only on the abundance of chemical elements in the Universe. The main part of the book is organized in an uncommon way and divided into two separate parts. The first one, including about 40 % of the material, is written in 12 chapters. It presents a brief overview of stars and planetary topics such as: characteristics of the Sun and other stars, an overview of planets including a comprehensive description of terrestrial and outer planets, satellites, meteorites and phenomena such as comets. The language and style

are easy to understand even for astro-beginners, most of scientific terms are well explained, which makes the book more reader-friendly for people starting in a field of astronomy. The content of this section is comprehensive, presenting most of the main planetary topics. A weak point of this section are the illustrations. The colorful, encouraging cover of the book strongly suggests colorful graphics inside, which is, unfortunately, misleading. Almost all of the illustrations are black-and-white and mostly demonstrative and simplified. Moreover, the graphics could be drawn more carefully or retouched to improve their readability (e.g., figures 2.12, 3.7, 4.29, 4.38).

The remaining 60 % of the book consists of 43 special topics written in the form of appendices. It is an interesting way to provide a broader context to the material introduced in the main chapters and encourages the reader to further investigate a given topic. This part is more mathematical and physical and describes more deeply most of the physical processes presented in the first part of the book. This part introduces the basics of mineralogy, stellar evolution, physical phenomena and processes ongoing in and on planets, etc. The understanding of appendices, which are rich in mathematical equations, requires the basics of algebra. It is very thoughtful that all values are consistently given in SI units. Unfortunately, also some of the figures in this part of the book are rather poor-quality, black-and-white pictures (e.g., figures J.6, S.1, W.14, X.6, X.15).

After each chapter in the book, the reader can find problems related to the presented material. It is very interesting for the reader to solve them by him/herself; however, it would be more valuable if some

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solutions or at least answers were given later or elsewhere in the book. This would allow the self-studying reader to be more sure about his/her solution and enhance the pedagogical value of the book.

After the last part of the book, two educational numerical programs are presented: codes for TIDE and TROJANS. Both codes are written in Fortran 77 and are well commented on, which helps a lot to understand the algorithms. For future editions of the book it may be worthwhile to translate the codes to modern Fortran 90/95 or even Python/Numpy which is becoming a standard in today's computational astrophysics.

The final part of the book contains a list of physical constants and useful astronomical data, references and an index. The index is worth noticing because it is very detailed and handy for the reader. Unfortunately, many published academical books miss this valuable feature.

Overall, the book is a very comprehensive introduction to planetary science addressed to first-level students or self-learning readers. The main chapters provide pieces of information about topics related to solar planets and exoplanets, and are supplemented by appendices, which give a broader physical and astrophysical context to these topics. The negative points listed above can be treated as guidelines aimed to improve the readability and quality of any future editions of this book. In our opinion, the book should be considered by lecturers as a good textbook for planetary science courses at universities and schools all over the world. The language and style should be easy to understand also by non English-speaking readers.

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