(though you probably already know the answer to the question in the first paragraph of this review).

Both sections of the audience will find this book satisfying. For dancers, understanding the physics of their movements will give insight into what cannot be done, and how to do what can be done. Physicists will find the theory of dance interesting and stimulating – I finished the book with a number of ideas for theoretical undergraduate projects – and it will enhance their enjoyment of dance as a spectator.

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An Introduction to Lagrangian Mechanics, by A.J. Brizard, Singapore, World Scientific, 2008, 259 pp., £24 (paperback), ISBN 978-981-281-837-9. Scope: textbook. Level: undergraduate and graduate students.

A new textbook on Lagrangian Mechanics? Certainly there are many good textbooks on this matter, each one with its own characteristics, advantages and disadvantages. The one reviewed here follows the tradition of the great authors, such as Whittaker, Landau and Lifshitz or the recent Goldstein, Pool and Safko and the excellent text by Lanczos on the variational principles of mechanics. The goals pursued by the author are to offer a textbook developing the key concepts in Lagrangian Mechanics, to introduce the student to the use of numerical examples (although it does not contemplate the use of numerical simulations by computer), the introduction of numerous historical notes and finally it attempts to serve as a bridge between classical and quantum mechanics. From this point of view, the book is excellent providing a solid foundation in analytical mechanics. The selection of topics, the analysis used for the description of all the key concepts, the historical description of the very many characters appearing along the development of the theory, including the rigorous mathematical analysis used for the exposition of the different chapters, makes it a very useful textbook. Each chapter ends with a nice collection of interesting exercises intended to be solved by the student. Also something remarkable, are the nice examples distributed in the text and the mathematical appendices, where the one on elliptic functions and integrals is rather complete, with many interesting applications useful to describe the dynamics of nonlinear oscillators. Even though all these make an excellent book, my main concern is the kind of students for which such a book could be used. The author mentions that he has used it as lecture notes for a one-semester course for junior students in an American College. I consider that the level of the textbook is very high, and in this manner I think it would be more appropriate for a postgraduate course, once the student has a solid knowledge of classical mechanics and a profound knowledge of mathematics; without it I hardly believe the book can be followed. It can also be very useful as a source reference for lecturers in advanced mechanics, by selecting the appropriate sections and adapting them to the level of the students in class.

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Stochastic Resonance. From Suprathreshold Stochastic Resonance to Stochastic Signal Quantization, by M.D. McDonnell, N.G. Stocks, C.E.M. Pearce and D. Abbott, Cambridge, Cambridge University Press, 2008, 425 pp., £80.00 (hardback), ISBN 978-0-521-88262-0. Scope: monograph. Level: graduate students and researchers.

Stochastic resonance is a phenomenon that appears in the presence of noise in a non-linear dynamical system, and which has resulted as an essential mechanism for optimal system performance. It has been observed to occur in many physical or biological systems, including both neurons and electronic circuits. In spite of the fact that in the past few years a lot of work on this phenomenon has been done, very few books have concentrated on its mathematical foundations and its applications. The current book dedicates a great deal of effort to define and describe the historical aspects of stochastic resonance including an excellent historical description of the concept, including a very rich bibliography as well. Chapter 2, where all this information appears, is fundamental for the understanding of the rest of the book, which is also very clear and very well written. However, as the authors say, ‘The aim of this book is to comprehensively outline all known theoretical and numerical results on SSR (Suprathreshold Stochastic Resonance) and to extend this theory’. This concept of SSR occurs in a parallel array of simple threshold devices subject to independent additive noise and was discovered by Stocks, one of the authors of this book, in 1999. Most chapters of the book are dedicated to describe this phenomenon in detail. Another key concept is stochastic quantisation, which the authors define to mean quantisation by thresholds that are independent random variables. Several chapters are used to describe in detail the notion of quantisation of a signal and in particular, as they define it, stochastic quantisation. Two chapters are dedicated to some particular applications: neural coding and stochastic resonance in the auditory system, with interesting applications in cochlear implants. A final concluding chapter on the future of stochastic resonance and suprathreshold stochastic resonance provides an excellent, though brief, overview of the future of the field.

The title of the book makes you feel that finally you find a book fully devoted to the phenomenon of stochastic resonance and its applications, which are many in sciences and engineering. When you open and read the book, however, you realise that indeed the book contains an excellent account of this phenomenon, but the main goal of it is to describe the phenomena of suprathreshold stochastic resonance and stochastic quantisation, with their corresponding and very interesting applications mainly in signal theory and some biomedical devices.

Something I have liked very much is that each chapter ends with a chapter summary, a chapter in a nutshell highlighting the most important aspects described in each chapter, and also a list of open questions which can be very helpful for the reader.

The book contains a foreword including comments by two well known scientists whose efforts have been dedicated to applications of stochastic resonance in the engineering and biophysics fields, and I agree with them that the book is indispensable for graduate students and researchers who need to navigate through the modern sea of stochastic resonance, and with a sufficient mathematical background.

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Stargazing Basics: Getting Started in Recreational Astronomy, by P.E. Kinzer, Cambridge, Cambridge University Press, 2008, 160 pp., £12.99 (paperback), ISBN 978-0521728591. Scope: introductory guide. Level: general reader.

Many of us, I am sure, are embarrassed to look up at the night sky and be able to name only a limited number of constellations and fewer stars. It is like (as C.P. Snow might have observed) being ignorant of Shakespeare's plays if you are English or Goethe's if you are German. It is especially embarrassing for physicists, as many physics courses cover all sorts of details about stellar formation evolution, fusion in stars and even planetary physics. Yet, if asked to point out a red giant or Cepheid variable in the sky, a large proportion of physicists would stumble.

Armed with a planisphere and an idea how to use it (or, these days, pointing your smartphone at the sky with the right app) will at least make identification possible but the physicist's mind isn't usually satisfied with maps and learning lists of things (if it were, we might have inclined more towards the classics, or biology!) and we'd rather know how to find these things out for ourselves. This is where *Stargazing Basics* steps in. It tries to teach you what kind of equipment you might usefully purchase if you want to become a backyard astronomer, and the kinds of things you might look at.

Some of the information is timeless – wide-eyed star gazing to see constellations and meteor showers will never go out of fashion so gets a chapter to itself. Neither will binoculars, which are also treated to a whole chapter, and a very informative one too, covering the 'whys' as well as the 'whats'. Kinzer tries to make the telescope information relatively future-proof by sticking to important key ideas. The laws of physics govern things like image resolution and aperture; hence, he rightly emphasises that (and focal length, to give the effective 'speed' like the f number of a camera) above other features. However, 'goto' functions on scopes are rapidly becoming cheaper and allow for tracking stars even on an alt-azimuth mount, making his advice on these a little out of date already. That aside, there is enough of the physical principles and the reasons for making choices between features for the reader to feel they could make an informed purchase even for things not covered explicitly.

The second half of the book is devoted to things you might reasonably look for and this will remain a useful reference for a long time. The world beyond this world is divided into the solar system and 'deep space' with realistic ideas of what you might see and all clearly explained. There is no attempt made to explain the declination and right ascension system of co-ordinates, possibly because it would only really interest a more technical audience.

Although it is inevitably limited, *Stargazing Basics* lives up to its title. It will get you started but you will need to complement it with a planisphere or star mapping software, some binoculars and a small telescope and then further books on the subject. As