

GENERAL / GÉNÉRAL

THE PHYSICS OF POLARIZED TARGETS, Tapio O. Niinikoski, Cambridge University Press, 2020; pp. 530; ISBN: 978-1108475075; Price: 218.95.

THEORY OF SIMPLE GLASSES: EXACT SOLUTIONS IN INFINITE DIMENSIONS, Giorgio Parisi, Pierfrancesco Urbani & Francesco Zamponi, Cambridge University Press, 2020; pp. 349; ISBN: 978-1107191075; Price: 91.95.

UNDERGRADUATE LEVEL / NIVEAU DE PREMIER CYCLE

PRINCIPLES OF OPTICS: 60TH ANNIVERSARY EDITION, Max Born & Emil Wolf, Cambridge University Press, 2019; pp. 992; ISBN: 978-1108477437; Price: 79.95.

THE COSMIC REVOLUTIONARY'S HANDBOOK: (OR: HOW TO BEAT THE BIG BANG), Luke A. Barnes & Geraint F. Lewis, Cambridge University Press, 2020; pp. 286; ISBN: 978-1108486705; Price: 25.95.

THEORETICAL CONCEPTS IN PHYSICS AN ALTERNATIVE VIEW OF THEORETICAL REASONING IN PHYSICS (3D ED.) [v], Malcolm S. Longair,

Cambridge University Press, 2020; pp. 636; ISBN: 9781108484534; Price: 68.95.

SENIOR LEVEL / NIVEAU SUPÉRIEUR

INVARIANT IMBEDDING T-MATRIX METHOD FOR LIGHT SCATTERING BY NONSPHERICAL AND INHOMOGENEOUS PARTICLES, Bingqiang Sun, Lei Bi, Ping Yang, Michael Kahnert and George Kattawar, Elsevier, 2020; pp. 262; ISBN: 978-0-12-818090-7; Price: 158.11.

MEAN FIELD THEORY, Vladimir M Kolomietz, Shalom Shlomo [v], World Scientific, 2020; pp. 588; ISBN: 978-981-121-177-5; Price: 252.95.

PEAR-SHAPED NUCLEI, Suresh C Pancholi, World Scientific, 2020; pp. 192; ISBN: 978-981-121-759-3; Price: 121.61.

STATISTICS, DATA MINING, AND MACHINE LEARNING IN ASTRONOMY: A PRACTICAL PYTHON GUIDE FOR THE ANALYSIS OF SURVEY DATA, UPDATED EDITION, Zeljko Ivezić, Andrew J. Connolly, Jacob T. VanderPlas, and Alexander Gray, Princeton University Press, 2019; pp. 560; ISBN: 9780691198309; Price: 103.58.

BOOK REVIEWS / CRITIQUES DE LIVRES

FURTHER ADVENTURES OF THE CELESTIAL SLEUTH, by Olson, Donald W., Springer, 2018, pp. 334, ISBN: 978-3-319-70319-0, price 32.84.

I selected this book because I was intrigued by its premise: using astronomy to solve mysteries regarding the time, date and location of the origins of works of art. As a secondary school physics teacher, I am always interested in finding other ways to teach students about the applications of the knowledge and skills we teach them in school, and this text did not disappoint.

The book reads much like a Sherlock Holmes case file. Donald W. Olson describes how he and his team from Texas State examined paintings, battles, photographs, and literature through an astronomical lens, to locate, re(examine) and challenge their understandings of the works, as well as the conclusions of other researchers. Clues, such as historical documents (e.g., letters, train schedules, tide tables, newspaper clippings) are combined with modern means (e.g., computer planetarium simulations), to build their own portrait, which includes information about the astronomy, as well as the artists themselves.

Broken into four parts — *Astronomy in Art*, *Astronomy in History*, *Astronomy in Literature*, *The Terrestrial Sleuth* — Olson begins each chapter outlining the questions he and his team had set out

to solve. In Part One, the challenge was often to deduce the location and date for a painting. Olson works with an underlying assumption that the artist included an accurate representation of what was present in the night sky from their location. From this, he uses stories about the artists and other references to the work, to deduce his answers. Olson also includes in this section an examination of *Times Square Kiss* — and specifically the shadows on the buildings — to add more information to the ongoing discussion on the as-yet unidentified woman and sailor. In Part Two, the team sought to better understand the factors which influenced strategic battle preparations (such as the case for the Battle of Stirling Bridge or the Battle of Normandy), and worked with data to highlight misconceptions. Part Three focuses on literary passages, to determine their accuracy, in terms of celestial movements and season. Olson uses knowledge of each author's astronomical competence to frame the possible legitimacy of the passages, and then move on to determine whether authors had accurately described astronomical events or celestial movements based on the season or location of a scene. In the final part, Olson turns to two final puzzles: a railway and locating the Millais oak tree.

This is the second *Celestial Sleuth* book, and Olson makes reference to other case files in that

volume — although not required to understand what is discussed here. The background knowledge required to understand the text is at the secondary level, and new material and terminology is explained succinctly to allow the reader to follow key ideas of analyses. For me, I felt it did provide some interesting options from which to teach physics at the secondary level, such as Chaucer's description of the moon's path in terms of Kepler's Laws of motion. For the higher education educator, I feel the book gives enough information to provide a roadmap of the kinds of information and tools one would need to endeavor on a similar quest.

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ON GRAVITY — A BRIEF TOUR OF A WEIGHTY SUBJECT, by Anthony Zee, Princeton University Press, 2018, ISBN: 9780691174389, price 19.95.

In the preface, Anthony Zee tells his readers that *On Gravity* is supposed to bridge the gap between popular books and textbooks on Einstein gravity. After reading the 142 pages of the main text and the eight-page appendix, I am convinced that he succeeded. The area between popular books and textbooks is somewhat of a no man's land, and