

BOOK REVIEW POLICY

Books may be requested from the Book Review Editor, Richard Marchand, by using the online book request form at <http://www.cap.ca>. You must be a residing in Canada to request a book.

CAP members are given the first opportunity to request books. For non-members, only those residing in Canada may request a book. Requests from non-members will only be considered one month after the distribution date of the issue of *Physics in Canada* in which the book was published as being available.

The Book Review Editor reserves the right to limit the number of books provided to reviewers each year. He also reserves the right to modify any submitted review for style and clarity. When rewording is required, the Book Review Editor will endeavour to preserve the intended meaning and, in so doing, may find it necessary to consult the reviewer. Reviewers submit a 300-500 word review for publication in PiC and posting on the website; however, they can choose to submit a longer review for the website together with the shorter one for PiC.

LA POLITIQUE POUR LA CRITIQUE DE LIVRES

Si vous voulez faire l'évaluation critique d'un ouvrage, veuillez entrer en contact avec le responsable de la critique de livres, Richard Marchand, en utilisant le formulaire de demande électronique à <http://www.cap.ca>.

Les membres de l'ACP auront priorité pour les demandes de livres. Ceux qui ne sont pas membres et qui résident au Canada peuvent faire une demande de livres. Les demandes des non-membres ne seront examinées qu'un mois après la date de distribution du numéro de la Physique au Canada dans lequel le livre aura été déclaré disponible.

Le Directeur de la critique de livres se réserve le droit de limiter le nombre de livres confiés chaque année aux examinateurs. Il se réserve, en outre, le droit de modifier toute critique présentée afin d'en améliorer le style et la clarté. S'il lui faut reformuler une critique, il s'efforcera de conserver le sens voulu par l'auteur de la critique et, à cette fin, il pourra juger nécessaire de le consulter. Les critiques pour publication dans la PaC doivent être de 300 à 500 mots. Ces critiques seront aussi affichées sur le web; s'ils le désirent les examinateurs peuvent soumettre une plus longue version pour le web.

BOOKS RECEIVED / LIVRES REÇUS

The following titles are a sampling of books that have recently been received for review. Readers are invited to write reviews, in English or French, of books of interest to them. Unless otherwise indicated, all prices are in Canadian dollars.

Lists of all books available for review, books out for review and book reviews published since 2011 are available on-line at www.cap.ca (Publications).

In addition to books listed here, readers are invited to consider writing reviews of recent publications, or comparative reviews on books in topics of interest to the physics community. This could include for example, books used for teaching and learning physics, or technical references aimed at professional researchers.

Les titres suivants sont une sélection des livres reçus récemment aux fins de critique. Nous invitons nos lecteurs à nous soumettre une critique en anglais ou en français, sur les sujets de leur choix. Sauf indication contraire, tous les prix sont en dollars canadiens.

Les listes de tous les livres disponibles pour critique, ceux en voie de révision, ainsi que des critiques publiées depuis 2011 sont disponibles sur : www.cap.ca (Publications).

En plus des titres mentionnés ci-dessous, les lecteurs sont invités à soumettre des revues sur des ouvrages récents, ou des revues thématiques comparées sur des sujets particuliers. Celles-ci pourraient par exemple porter sur des ouvrages de nature pédagogique, ou des textes de référence destinés à des professionnels.

GENERAL LEVEL

ADVANCED SERIES ON DIRECTIONS IN HIGH ENERGY PHYSICS: VOLUME 30 [v], ATLAS Collaboration at CERN, World Scientific, 2020; pp. 372; ISBN: 978-981-3271-79-1; Price: 58.00.

SYMMETRY [v], Hermann Weyl, Princeton University Press, 2016; pp. 176; ISBN: 9780691173252; Price: 20.74.

UNDERGRADUATE LEVEL

AN INTRODUCTION TO RADIO ASTRONOMY (FOURTH EDITION), Bernard F. Burke, Francis Graham-Smith, Peter N. Wilkinson, Cambridge University Press, 2019; pp. 540; ISBN: 978-1107189416; Price: 91.95.

CLASSICAL FIELD THEORY, Horațiu Năstase, Cambridge University Press, 2019; pp. 480; ISBN: 978-1108477017; Price: 91.95.

DO WE REALLY UNDERSTAND QUANTUM MECHANICS? 2ND EDITION, Franck Laloë, Cambridge University Press, 2019; pp. 546; ISBN: 978-1108477000; Price: 68.95.

EXPERIMENTAL METHODS FOR SCIENCE AND ENGINEERING STUDENTS: AN INTRODUCTION TO THE ANALYSIS AND PRESENTATION OF DATA (SECOND EDITION), Les Kirkup, Cambridge University Press, 2019; pp. 236; ISBN: 978-1108418461; Price: 56.95.

INTRODUCTION TO MODERN MAGNETOHYDRODYNAMICS, Sébastien Galtier, Cambridge University Press, 2016; pp. 288; ISBN: 978-1107158658; Price: 85.95.

METEORIDS: SOURCES OF METEORS ON EARTH AND BEYOND, Galina O. Ryabova, David J. Asher, Margaret D. Campbell-Brown, Cambridge University Press, 2019; pp. 318; ISBN: 978-1108426718; Price: 160.93.

QUANTUM CONCEPTS IN THE SOCIAL, ECOLOGICAL AND BIOLOGICAL SCIENCES, Fabio Bagarello, Cambridge University Press, 2019; pp. 310; ISBN: 978-1108492126; Price: 85.43.

SENIOR LEVEL

A DYNAMICAL SYSTEMS THEORY OF THERMODYNAMICS [v], Wassim M. Haddad, Princeton University Press, 2019; pp. 744; ISBN: 9780691190143; Price: 128.99.

ASYMPTOTIC DIFFRACTION THEORY AND NUCLEAR SCATTERING, Roy J. Glauber, Per Osland, Cambridge University Press, 2019; pp. 206; ISBN: 978-1107104112; Price: 160.95.

CLASSICAL KINETIC THEORY OF WEAKLY TURBULENT NONLINEAR PLASMA PROCESSES, Peter H. Yoon, Cambridge University Press, 2019; pp. 362; ISBN: 978-1107172005; Price: 177.95.

ELECTROWEAK PHYSICS AT THE LHC, Matthias U. Mozer, Springer, 2016; pp. 115; ISBN: 978-3319303802; Price: 111.39.

MASS DIMENSION ONE FERMIONS, Dharam Ahluwalia, Cambridge University Press, 2019; pp. 132; ISBN: 978-1107094093; Price: 160.95.

MHD WAVES IN THE SOLAR ATMOSPHERE, Bernard Roberts, Cambridge University Press, 2019; pp. 524; ISBN: 978-1108427661; Price: 200.95.

MODERN OPHTHALMIC OPTICS, José Alonso, José A. Gómez-Pedrero, Juan A. Quiroga, Cambridge University Press, 2019; pp. 562; ISBN: 978-1107110748; Price: 95.88.

MORE THINGS IN THE HEAVENS: HOW INFRARED ASTRONOMY IS EXPANDING OUR VIEW OF THE UNIVERSE [v], Michael Werner and Peter

Eisenhardt, Princeton University Press, 2019; pp. 304; ISBN: 9780691175546; Price: 46.13.

NON-INERTIAL FRAMES AND DIRAC OBSERVABLES IN RELATIVITY, Luca Lusanna, Cambridge University Press, 2019; pp. 336; ISBN: 978-1108480826; Price: 175.63.

OPTICAL EFFECTS IN SOLIDS, David B. Tanner, Cambridge University Press, 2019; pp. 410; ISBN: 978-1107160149; Price: 100.03.

PHYSICS PROBLEMS FOR ASPIRING PHYSICAL SCIENTISTS AND ENGINEERS: WITH HINTS AND FULL SOLUTIONS, Ken Riley, Cambridge University Press, 2019; pp. 346; ISBN: 978-1108701303; Price: 37.95.

QUANTUM WORLDS: PERSPECTIVES ON THE ONTOLOGY OF QUANTUM MECHANICS, Editors: Olimpia Lombardi, Sebastian Fortin, Cristian López, Federico Holik, Cambridge University Press, 2019; pp. 408; ISBN: 978-1108473477; Price: 177.95.

RELATIVISTIC FLUID DYNAMICS IN AND OUT OF EQUILIBRIUM: AND APPLICATIONS TO RELATIVISTIC NUCLEAR COLLISIONS, Paul Romatschke, Ulrike Romatschke, Cambridge University Press, 2019; pp. 204; ISBN: Price: 160.95.

SOLVING FERMI'S PARADOX, Duncan H. Forgan, Cambridge University Press, 2019; pp. 426; ISBN: 978-1107163652; Price: 177.95.

SPACE-TIME, YANG-MILLS GRAVITY, AND DYNAMICS OF COSMIC EXPANSION [v], Jong-Ping Hsu and Leonardo Hsu, World Scientific, 2019; pp. 300; ISBN: 978-981-120-043-4; Price: 138.58.

WAVEFRONT SHAPING FOR BIOMEDICAL IMAGING, Joel Kubby, Sylvain Gigan, Meng Cui, Cambridge University Press, 2019; pp. 468; ISBN: 978-1107124127; Price: 200.95.

BOOK REVIEWS / *CRITIQUES DE LIVRES*

A STUDENT MANUAL FOR "A FIRST COURSE IN GENERAL RELATIVITY", by Robert B. Scott, Cambridge University Press, 2016, pp. 310, ISBN 9781139795449, price 29.95.

This is an excellent companion volume for anyone contemplating teaching a first course in General Relativity. Ideally the course manual should be the corresponding book by Bernard Schutz called "A first course in general relativity" also published by Cambridge University Press. The book by Schutz is an excellent first course in General Relativity, which presents the subject by first explaining in detail special relativity in the first 4 chapters followed by 8 chapters which gently lead the student into the complexity of General Relativity where it starts with the definition of curved manifolds followed by physics in curved spacetime, to Einstein's equations and then followed by applications to gravitational radiation, spherical solutions for stars, black holes and ending with a short introduction to cosmology.

Scott's Student Manual follows Schutz' book exactly, chapter by chapter, indeed the chapter headings in the two books are identical. There are according to Scott, 388 exercises in Schutz's book. Scott suggests that the interested learner do each and every one of them. In Scott's book, he does give the solution of most of the exercises of Schutz and he gives many more solved supplementary exercises, in addition to some exercises for which the solutions are not provided. Scott uses the notation eq.(n.m) to denote the exercises/equations in Schutz's book while the notation eq.(n.m) to denote exercises/equations in the Student Manual. The solutions are always placed in a grey background so that it is clear when one is reading a solution as opposed to the exercises themselves. Scott goes through very much detail in explaining the solution, hence some might find the solutions a bit laborious, however, they are very pedagogic. Scott does this expressly, his aim being "to be complete, to spell it all out". Scott also has provided an accompanying Maple worksheet,

which is available for download from the Cambridge University Press web-site.

The first 4 chapters of Scott's book are on special relativity. The subject is presented to the reader through many exercises that are based on very fundamental aspects, starting with exercises on the basic definition of natural units, then the principles of special relativity: that no observer can measure the absolute velocity of any other observer and that the speed of light is universal, invariant for all inertial observers. These are followed by two chapters of exercises on the notions of vectors and tensors in Minkowski spacetime and ending with a chapter on the definition of a perfect fluid in special relativity.

Then come the exercises on the heart of the matter, General Relativity. The next four chapters, 5 through 8, give exercises on the mathematical structure and the notions of