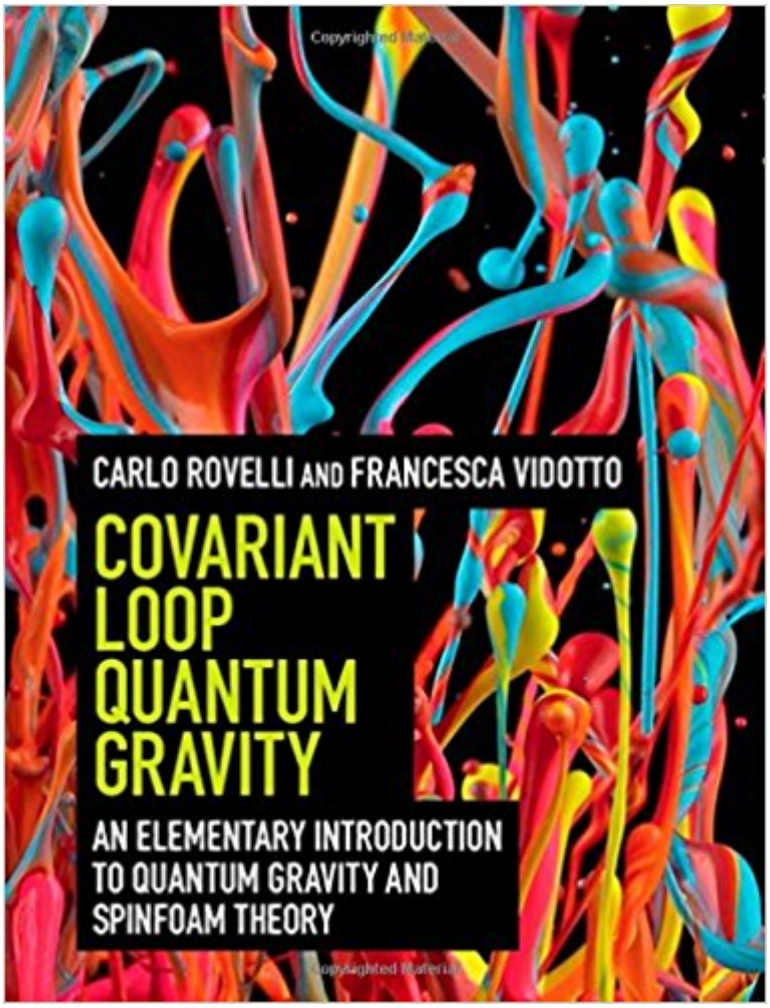
Covariant Loop Quantum Gravity: An Elementary Introduction To Quantum Gravity And Spinfoam Theory (Cambridge Monographs On Mathematical Physics)




PDF
Adobe
DOWNLOAD EBOOK

Synopsis

Quantum gravity is among the most fascinating problems in physics. It modifies our understanding of time, space and matter. The recent development of the loop approach has allowed us to explore domains ranging from black hole thermodynamics to the early Universe. This book provides readers with a simple introduction to loop quantum gravity, centred on its covariant approach. It focuses on the physical and conceptual aspects of the problem and includes the background material needed to enter this lively domain of research, making it ideal for researchers and graduate students. Topics covered include quanta of space; classical and quantum physics without time; tetrad formalism; Holst action; lattice QCD; Regge calculus; ADM and Ashtekar variables; Ponzano-Regge and Turaev-Viro amplitudes; kinematics and dynamics of 4D Lorentzian quantum gravity; spectrum of area and volume; coherent states; classical limit; matter couplings; graviton propagator; spinfoam cosmology and black hole thermodynamics.

Book Information

Series: Cambridge Monographs on Mathematical Physics
Hardcover: 266 pages
Publisher: Cambridge University Press; 1 edition (December 15, 2014)
Language: English
ISBN-10: 1107069629
ISBN-13: 978-1107069626
Product Dimensions: 7.4 x 0.7 x 9.7 inches
Shipping Weight: 1.7 pounds (View shipping rates and policies)
Average Customer Review: 4.4 out of 5 stars 7 customer reviews
Best Sellers Rank: #539,965 in Books (See Top 100 in Books) #76 inÂ Books > Science & Math > Physics > Gravity #347 inÂ Books > Science & Math > Physics > Mathematical Physics #495 inÂ Books > Science & Math > Physics > Quantum Theory

Customer Reviews

A comprehensible introduction to the most fascinating research in theoretical physics: advanced quantum gravity. This book focuses on the physical and conceptual aspects of the problem and includes the background material needed to enter this lively domain of research, making it ideal for researchers and graduate students.

Carlo Rovelli is Professor of Physics at UniversitÃ© d'Aix-Marseille, where he directs the gravity

research group. He is one of the founders of loop quantum gravity theory.Francesca Vidotto works at Radboud Universiteit Nijmegen and initiated the spinfoam approach to cosmology.

Misses it’s goal a bit, it wasn’t quite as low level as the authors anticipated. The preface states "assumes only some basic knowledge of general relativity, quantum mechanics and quantum field theory." This is very untrue, you must know considerably more than this. The middle chapters require you to be quite comfortable with differential forms and alternative formulations of the Einstein-Hilbert action.That being said, if you rewrite that sentence to assume comfort with GR, QFT and differential geometry, this book is the best book hands down for learning covariant LQG.

As the title of thsThis evaluation (3 stars) is not to degrade the context of this excellent book. But if you are to order this book, you better go with the printed version and not the Kindle one, as will you really find it difficult and bothering reading the mathematical equations, terms, and symbols in their scanned form that appear quite small and faded if not illegible.There is no way you can enlarge such scanned "images". It is really frustrating that e-books cannot follow (or imitate) the advanced standard or the format of PDF texts in which there is no difference between ordinary texts and specialized symbols or formulas either in their sharpness or size.I hope sometimes Kindle takes care of this problem. Mind, it is not a wishful thinking since it is surely doable, provided that a plethora of serious consumers (readers) demand it from or Kindle. Recall that in early versions of Kindle book it was impossible to refer to the page number of a scholarly book or any book you were reading (only the digital "locaton" was given), but this flaw does is already dealt with (the page number is now given in the Kindle edition as you click on a line).

My favorite parts of the book, that I’m currently reading with the greatest pleasure and interest, are Chapters 8, 9, 10, 11 (Classical Limit, Matter, Black Holes, Cosmology). Together with the earlier introductory chapters they give more than just a technical introduction---they provide a context of ideas, insights, motivation, intuitive grasp that helps one access current research! Context that can make a big difference, but which research papers may take for granted and touch on lightly or skip entirely.The style is lively and entertaining, and has plenty of enlightening graphic illustration. This is a great introduction for anyone who wants to start research in loop quantum gravity, or to follow what’s happening in the field.

Pleased with this book.

Yes it is a good book. It is difficult for me and must be read slowly.

excellent

Marvelous and intriguing at the same time. Oh, there comes time again!

Covariant Loop Quantum Gravity: An Elementary Introduction to Quantum Gravity and Spinfoam Theory (Cambridge Monographs on Mathematical Physics) Quantum Field Theory and Condensed Matter: An Introduction (Cambridge Monographs on Mathematical Physics) Quantum Electrodynamics: Gribov Lectures on Theoretical Physics (Cambridge Monographs on Particle Physics, Nuclear Physics and Cosmology) Superstring Theory: Volume 1, Introduction (Cambridge Monographs on Mathematical Physics) Fundamental Algebraic Geometry (Mathematical Surveys and Monographs) (Mathematical Surveys and Monographs Series (Sep.Title P) Advanced Molecular Quantum Mechanics: An Introduction to Relativistic Quantum Mechanics and the Quantum Theory of Radiation (Studies in Chemical Physics) Twistor Geometry and Field Theory (Cambridge Monographs on Mathematical Physics) The Scalar-Tensor Theory of Gravitation (Cambridge Monographs on Mathematical Physics) Superstring Theory 2 Volume Hardback Set: 25th Anniversary Edition (Cambridge Monographs on Mathematical Physics) A First Course in Loop Quantum Gravity The Mathematical Theory of Non-uniform Gases: An Account of the Kinetic Theory of Viscosity, Thermal Conduction and Diffusion in Gases (Cambridge Mathematical Library) Loop-d-Loop Lace: More Than 30 Novel Lace Designs for Knitters Chaos in Atomic Physics (Cambridge Monographs on Atomic, Molecular and Chemical Physics) The Chemical Physics of Ice (Cambridge Monographs on Physics) Quantum Field Theory in Strongly Correlated Electronic Systems (Theoretical and Mathematical Physics) The Quantum Mechanics Solver: How to Apply Quantum Theory to Modern Physics Elementary Algebraic Geometry (Student Mathematical Library, Vol. 20) (Student Mathematical Library, V. 20) An Introduction to the Mathematical Theory of Waves (Student Mathematical Library, V. 3) Recent Advances in the Theory of Chemical and Physical Systems: Proceedings of the 9th European Workshop on Quantum Systems in Chemistry and Physics ... in Theoretical Chemistry and Physics) Methods of Quantum Field Theory in Statistical Physics (Dover Books on Physics)