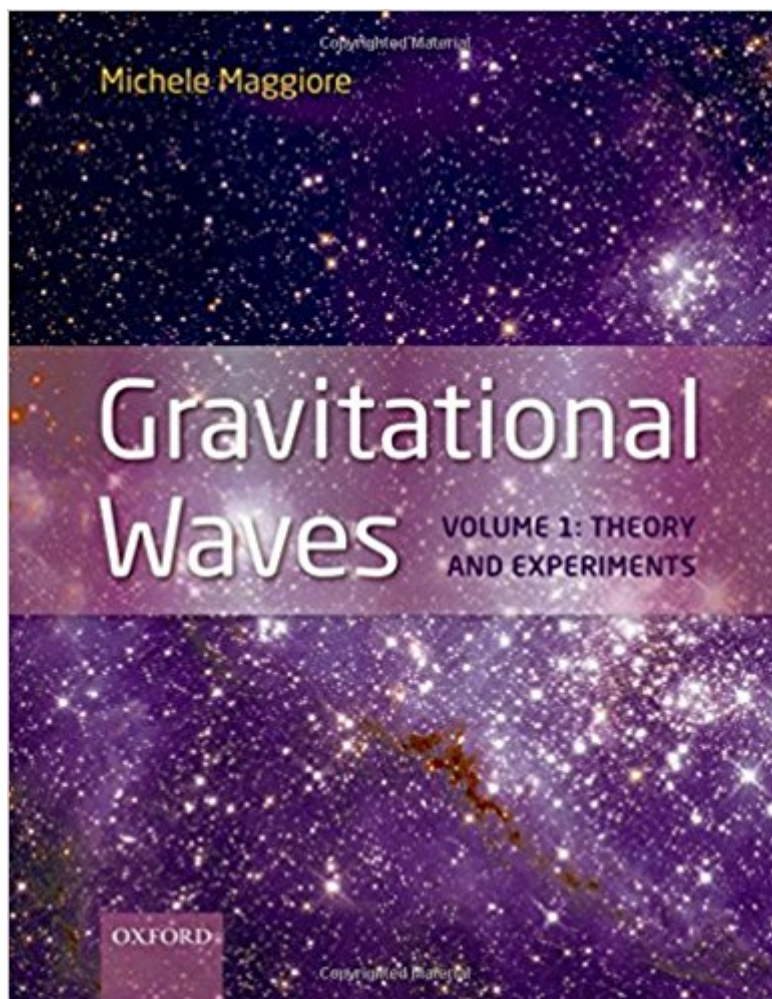


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Gravitational Waves: Volume 1: Theory And Experiments



Synopsis

The aim of this book is to become THE reference text for gravitational-wave physics, covering in detail both the experimental and the theoretical aspects. It is the only existing book on gravitational waves, and it will likely remain unique for its broadness and scope. It brings the reader to the forefront of present-day research, both theoretical and experimental, assuming no previous knowledge of gravitational-wave physics. Part I of this volume is devoted to the theory of gravitational waves. Here we have rederived - in a coherent way - most of the results that we present, clarifying or streamlining existing derivations. Part II is devoted to a description of experimental GW physics. We discuss in great detail existing and planned experiments, as well as data analysis techniques.

Book Information

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Customer Reviews

'There is no doubt that gravitational waves are about to be detected. Gravity has been steadily moving into the centre of physics for over a decade, and excitement generated by gravitational-wave signals would lead to a substantial demand for a graduate-level text such as this. I very much like the emphasis on rederiving classical results afresh and in a coherent context. The scheme of covering more technical topics through solved problems, also employed by in the classical Landau-Lifshitz series, is an excellent one. Part II of volume 1, on experiments, should provide an outstanding training in the principles of experimental physics and as such provide a wonderful graduate course.' James Binney, University of Oxford

'The book will fill a space which currently exists and will be of significant use to both students and researchers in the field as well as

those in other areas who want to know a little about the subject.' James Hough, University of Glasgow

Prof. Michele Maggiore Department of Theoretical Physics, University of Geneva Born in 1963, Michele Maggiore has graduated from University of Pisa in 1986, and has got his PhD from Scuola Normale Superiore in Pisa, in 1989. After postdoctoral positions in Bern and at University of Minnesota he became researcher at INFN in Pisa in 1991. Since 2001 he is Professeur Ordinaire (Professor) at the Dept. of Theoretical Physics, University of Geneva. His research interests cover a broad range of subjects, including quantum field theory, quantum gravity, cosmology, string theory, and the study of gravitational waves of astrophysical or cosmological origin. He is also involved in experimental efforts for gravitational wave detection.

This book is an excellent guide to the field of Gravitational Waves. The book does assume some background knowledge of general relativity, as do most texts on the subject. Overall the topics flow well together and are in a logical order. Most sections are very in depth while still having understandable explanations. There are more advanced sections which may be omitted on a first reading. Part one develops the theoretical background, while part two looks at observational evidence as well as data analysis and processing. The extensive use of side page footnotes is helpful for providing additional information and references without interrupting the flow of the main text. The end of each chapter contains a further reading section with additional resources, and thoroughly covers a great number of topics. For those truly new to the field some of the mathematical discussion is certainly a bit advanced but the text is almost always transparent enough to continue absorbing useful information throughout. See the author's personal webpage for an errata with corrections to errors in the text. Overall, this is a must have for anyone conducting research into gravitational waves!

This is currently mislabeled, the pack has 23 chapters, the kindle download only has 9 which is volume 1, in fact the publisher date for volume 2 is October or November. Will purchase when it's really available.

When I've read "The aim of this book is to become THE reference text for gravitational-wave physics" I thought "ha ha this guy is just bluffing". Anyway, I needed a good introduction in the topic so I bought it. Then I realized there was no bluffing... it is the most complete reference in the topic I

could dream of. The hypothesis very clearly stated and developed, from the simplest to the hardest stuff. Great book.

This text fills a void and will be a standard reference. I am quite happy to see so much great physics of gravitational waves assembled coherently in one spot. Both geometrical and field theoretical approaches are given equally thoughtful consideration in the theoretical layout (which I am slogging through currently). Recommended for GW researchers and those interesting in GWs.

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