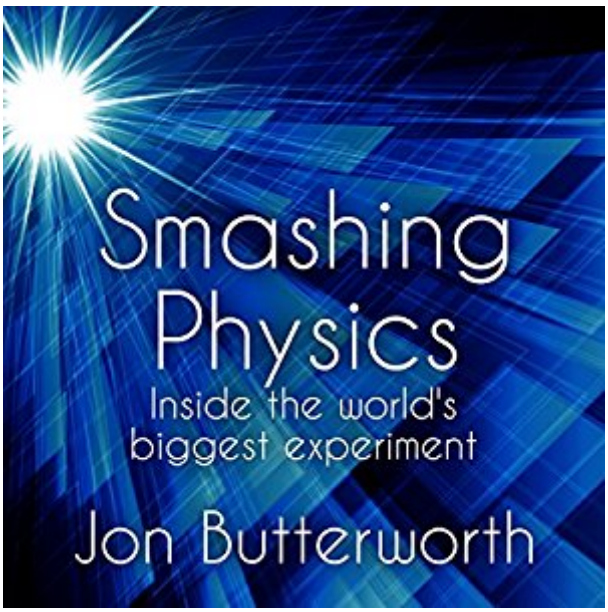
Smashing Physics: Inside The Discovery Of The Higgs Boson



Synopsis

The first insider account of the work at the Large Hadron Collider at CERN, the discovery of the Higgs particle - and what it all means for our understanding of the laws of nature. The discovery of the Higgs boson made headlines around the world. Two scientists, Peter Higgs and FranÃƒÂ§ois Englert, whose theories predicted its existence, shared a Nobel Prize. The discovery was the culmination of the largest experiment ever run, the ATLAS and CMS experiments at CERN's Large Hadron Collider. But what really is a Higgs boson and what does it do? How was it found? And how has its discovery changed our understanding of the fundamental laws of nature? And what did it feel like to be part of it? Jon Butterworth is one of the leading physicists at CERN and this book is the first popular inside account of the hunt for the Higgs. It is a story of incredible scientific collaboration, inspiring technological innovation and ground-breaking science. It is also the story of what happens when the world's most expensive experiment blows up, of neutrinos that may or may not travel faster than light, and the reality of life in an underground bunker in Switzerland.This book will also leave you with a working knowledge of the new physics and what the discovery of the Higgs particle means for how we define the laws of nature. It will take you to the cutting edge of modern scientific thinking. Jon Butterworth is one of the leading physicists on the Large Hadron Collider and is Head of Physics and Astronomy at UCL. He writes the popular Life & Physics blog for the Guardian and has written articles for a range of publications including the Guardian and New Scientist. Jon has appeared on BBC Radio 4's Today Programme, Material World, The Infinite Money Cage, BBC Newsnight, Horizon, Channel 4 News, and Al Jazeera. He frequently gives public lectures including at the Welcome Institute and the Royal Institution.

Book Information

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Customer Reviews

I think it was Einstein who said or at least implied that if you thought you understood quantum physics you probably had not got it? This book tries hard to help, but it is hard work for a non-physicist. However out of the many books and articles on the subject I found it probably the best and as one who has visited the CERN Atlas site the most intriguing as to how the physicists behind the work go about their jobs and what they are trying to achieve. Dewfinitely worth a read and be prepared to work at it!

Very good! I have been looking for a good book on the Higgs Boson. None of the others I considered lived up to my expectations. But this book does! In fact, it has exceeded my expectations, based on the existing reviews of it. I think this book is far better than the current reviews indicate. I highly recommend it for those interested in this topic.I know very little to nothing about particle physics. However, I found the book fun, easy to understand, entertaining and very educational.

Ã¢Â ÂœSmashing PhysicsÃ¢Â Â• by Jon ButterworthOk, this book reminds me that IÃ¢Â Â™m nowhere near as smart as IÃ¢Â Â™d like to think I am. It also reminded me how cool I think physics is.The author (Jon Butterworth is one of the leading physicists at CERN, and part of the search for the illusive Higgs boson. DonÃ¢Â Â™t know what a Higgs boson is? Well, read this book! Ok, you probably still wonÃ¢Â Â™t know what a Higgs boson is, but youÃ¢Â Â™ll get a better appreciation of the work that went into the research.And thatÃ¢Â Â™s the allure of this book, really. If youÃ¢Â Â™re looking for a dry explanation of the Higgs boson (which, by the way, is a particle whose existence was theorized some decades ago) and the physics behind it, this ainÃ¢Â Â™t your book.Are you looking for a historical narrative of the Large Hadron Collider (LHC), the huge particle accelerator (protons moving around a 16+ mile circle nearing the speed of light and colliding)? Nope, sorry, thatÃ¢Â Â™s a miss here as well.But it is a great personal narrative of the authors experiences with the project (and other related topics), with a fair amount of background physics so you can keep a perspective on why things were done the way they were done.Do I get all the physics? Fat chance, bucko. Those brain cells have long moved on. But I did get an insight into a lot of the processes that these types of experiments go through, but in the forumulative stages and then when theyÃ¢Â Â™re going full tilt. And that was an interesting ride, even if not ending up with colliding particles in my brain.

Bought this as an audio book, & it was both well written and well read. Physics is soothing after long days of working with people. The careful logic behind the sometimes jerky progress in science isn't hidden by this physicist and that's encouraging not only in science by in every endeavor that works by trial and error (& repeat until right).

To me this book seems a very strange mixture of irrelevant personal life snippets and generally incomprehensible particle physics koans. The author has written a book for a very small audience: those physicists that share with him his life career (and possibly style) and also a background of possibly more than ten years of academic education on exotic physics. Whenever he tries to "popularise" a difficult concept (a "boson" particle, "spin" etc.), in my opinion the explanations are either far too simplistic, in the best case, or totally obscure, in the worst. I do not think that he can reach a wide audience outside the specialists in his field and unfortunately he fails in making this science more "popular".Bold statements (like "this stuff is exciting") are unfortunately not accompanied by clear and proper explanations. You understand what he says only if you are doing particle physics yourself. The few unknown (to me) facts and numbers that I have learned here could have been summarised in a few pages.I am not sure why some physicists have also to popularise the fact that they like pubs and other irrelevant traveling adventures (unless they believe they are all Feynman) in books with a title like this one.

Jon Butterworth's book offers a nice overview of the scientific activities that are going on at CERN, the European Organization for Nuclear Research located near Geneva. This laboratory hosts the largest particle accelerator in the world, the Large Hadron Collider (LHC) in which protons moving around a circle of 27 km at speeds close to the speed of light. When two protons smash into each other, new particles are formed and their signature detected by huge detectors such as ATLAS or CMS. The book gently introduces many concepts necessary to understand accelerator physics as well as the excitement behind the discovery of the Higgs boson (2012). When I was near the end of the book, I read the news about the discovery of the pentaquark particles by CERN's LHCb experiment which are mentioned on page 107. The book is very worth reading and can be recommended to all those individuals with a broad interest in science and without fear of digesting a little math to deepen their own knowledge.

What makes this book stands out is the immersion of physics and the intuition the author offered in many basic, difficult and aloof concepts. Reading it feels like an joyful stroll of the physics world.

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