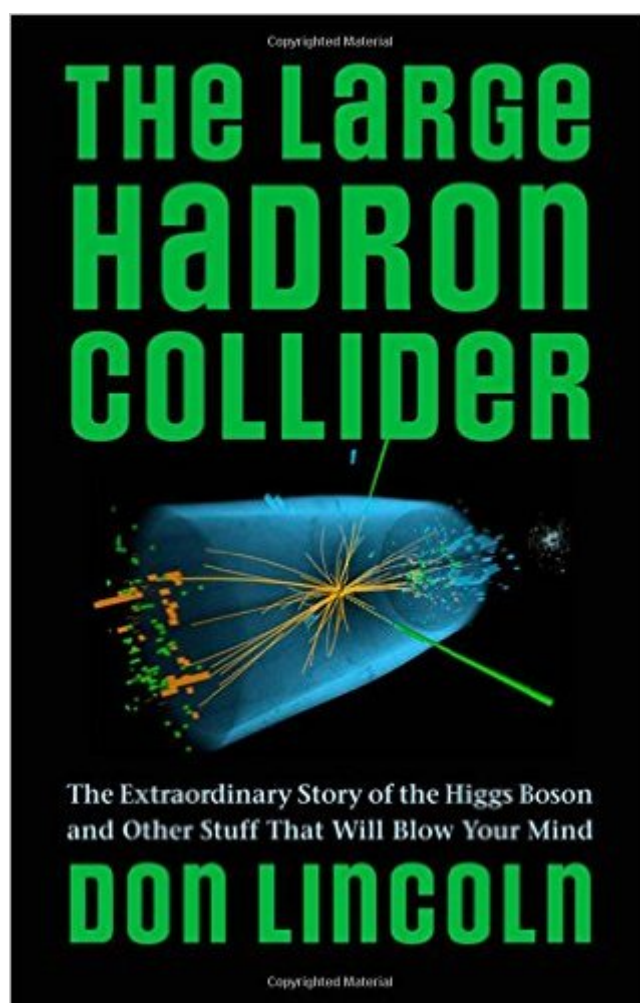


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The Large Hadron Collider: The Extraordinary Story Of The Higgs Boson And Other Stuff That Will Blow Your Mind



Synopsis

Since 2008 scientists have conducted experiments in a hyperenergized, 17-mile supercollider beneath the border of France and Switzerland. The Large Hadron Collider (or what scientists call "the LHC") is one of the wonders of the modern world—a highly sophisticated scientific instrument designed to recreate in miniature the conditions of the universe as they existed in the microseconds following the big bang. Among many notable LHC discoveries, one led to the 2013 Nobel Prize in Physics for revealing evidence of the existence of the Higgs boson, the so-called God particle. Picking up where he left off in *The Quantum Frontier*, physicist Don Lincoln shares an insider's account of the LHC's operational history and gives readers everything they need to become well informed on this marvel of technology. Writing about the LHC's early days, Lincoln offers keen insight into an accident that derailed the operation nine days after the collider's 2008 debut. A faulty solder joint started a chain reaction that caused a massive explosion, damaged 50 superconducting magnets, and vaporized large sections of the conductor. The crippled LHC lay dormant for over a year, while technical teams repaired the damage. Lincoln devotes an entire chapter to the Higgs boson and Higgs field, using several extended analogies to help explain the importance of these concepts to particle physics. In the final chapter, he describes what the discovery of the Higgs boson tells us about our current understanding of basic physics and how the discovery now keeps scientists awake over a nagging inconsistency in their favorite theory. As accessible as it is fascinating, *The Large Hadron Collider* reveals the inner workings of this masterful achievement of technology, along with the mind-blowing discoveries that will keep it at the center of the scientific frontier for the foreseeable future.

Book Information

Hardcover: 240 pages

Publisher: Johns Hopkins University Press (August 21, 2014)

Language: English

ISBN-10: 1421413515

ISBN-13: 978-1421413518

Product Dimensions: 6 x 0.8 x 9 inches

Shipping Weight: 1 pounds (View shipping rates and policies)

Average Customer Review: 4.6 out of 5 stars [See all reviews](#) (14 customer reviews)

Best Sellers Rank: #212,842 in Books (See Top 100 in Books) #31 in [Books > Science & Math > Physics > Nuclear Physics > Particle Physics](#) #32 in [Books > Science & Math > Physics >](#)

Customer Reviews

Lincoln's book is extremely well done and extends the work he did on his first book, *The Quantum Frontier*. The LHC's finding of the Higgs Field & Boson and Lincoln's descriptive review is outstanding. Almost as good as being there - ALMOSTJJ

Great book lots of good information if you're interested in CERN and the finding of the Higgs Boson. Don goes into a lot of detail explaining much of basic subatomic physics as he gets the point of the reason for the LHC.

This book was interesting but did not blow my mind. Here's what would have blown my mind. "The Universe started out as energy. Yet today most of it is matter. We all know that matter and energy are interchangeable. We even know how they equate: the change in energy equals the change in mass times the speed of light squared ($E = mc^2$). We are also pretty good at changing matter to energy, in nuclear power plants and hydrogen bombs. What we don't know how to do is change energy to matter. And that must happen a lot, or the universe would be mostly energy and I wouldn't be here to write this book. So how does that happen? It turns out that it requires a field that affects energy particles and gives them mass. This is the story of why we need that field and how the CERN Large Hadron Collider proved that it exists." • Don Lincoln is very good at explaining complex particle physics in layman's terms. He is not very good at translating the mysteries that excite a particle physicist into adventures that excite a layman. If you are interested in CERN, the LHC, and the Higgs Boson, by all means read this book. If you want to have your mind blown by cosmic mysteries, stick with Steven Hawking.

Great insight into the workings of the LHC -- be prepared for extreme detail. Two flaws (in my mind): Each and every measurement of size, distance, etc., is given in both English and metric units; very distracting. Too many awkward comparisons in an attempt to clarify concepts. He should realize that anyone reading the book can grasp the ideas without comparisons to too simple things.

This book offers much more than just a bunch of information about the LHC. For non-physicists (like me), the book brings a wealth of basic scientific education on subparticles and other technical information that are essential for a correct understanding of what the LHC was built for and what its

current experiments are doing. I recommend it highly.

An excellent discussion by an informed author who loves his topic....very approachable for the layman....

Very technical but interesting. I don't know how you could write about this subject without being technical

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