Il bosone di Higgs: Linvenzione e la scoperta della «particella di Dio» By Jim Baggott Il bosone di Higgs: Linvenzione e la scoperta della «particella di Dio» Very insightful read :) Il bosone di Higgs: Linvenzione e la scoperta della «particella di Dio» Quá nhiều kiến thức để có thể “nuốt” hết trong một lần . Bữa nào phải đọc lại mới được :))) Il bosone di Higgs: Linvenzione e la scoperta della «particella di Dio» Tra i tanti oggetti pervasivi ed elusivi che affollano la dimensione invisibile del mondo subatomico.

But when I read this book I found that I didn't understand the overall picture nearly as well as I'd thought I did. Baggott does a very good job of tying it all together and showing you how a major scientific theory grows from a crazy idea you can't even get published into something that makes front-page news when it's empirically validated. He seems to know the science well - he's written a couple of other books on quantum mechanics - and he's clearly read a lot of background and talked to many of the people involved. Il bosone di Higgs: Linvenzione e la scoperta della «particella di Dio» Whenever someone famous dies or there’s a major royal event you will see a book arrive in the shops with undue haste. So when I saw that Jim Baggott had produced a book on the Higgs boson all of five weeks after the likely detection was announced following several years work by the Large Hadron Collider at CERN.

The harder it is to accelerate. What logic does the Higgs mechanism turn on its head? What's 'a puff of logic' in which the concept of mass has vanished? Perhaps that 'puff of logic' is a sudden confession that the terms 'massless' and 'energy' are wrongly and misleadingly used throughout the book. Here is my brief impression after checking first 70 pages from Jim Baggott's book: (I doubt to read further):Jim Baggot tries initially to explain symmetry on few pages and jumps instantly into Lie groups and gauge symmetries. After reading Symmetry and the Beautiful Universe some time ago I would love to see this book combined into one with The God Particle) - Leon Lederman does fantastic job explaining what is symmetry il bosone di Higgs è stato il più pervasivo ed elusivo: quella particella era l'elemento cruciale che mancava a completare il puzzle del Modello Standard perché conferiva massa a tutte le altre particelle elementari un enigma rimasto altrimenti insoluto. Quando finalmente il 4 luglio 2012 il CERN ne ha annunciato la verifica sperimentale la particella di Dio» (come un fisico l’ha temerariamente denominata) ha attirato su di sé i riflettori dell'attenzione mediatica mondiale. Non solo infatti ne ricostruisce la genesi teorica ma ripercorre tutte le stazioni di avvicinamento all'eclatante risultato di Ginevra: il legame tra i primi acceleratori degli anni Venti e le collisioni di particelle nei raggi cosmici; la messa a punto del ciclotrone da parte di Lawrence; il contributo di Van der Meer il cui metodo di «raffreddamento stocastico» ha permesso al gruppo di Rubbia l'individuazione dei bosoni W e Z decisivi per arrivare alla scoperta del bosone di Higgs; e le svolte successive del LEP (Large Electron-Positron Collider) e dell'ormai leggendario LHC (Large Hadron Collider) che con i suoi 1600 magneti superconduttori ha permesso di sviluppare energie senza precedenti. Presentandoci via via gli snodi più sofisticati del mondo delle particelle Baggott ci accompagna attraverso una narrazione serrata e avvincente in un viaggio che ci costringe a ripensare tutte le categorie abituali della fisica fino a convincerci di come un famoso aforisma di Einstein – «Dio è sottile ma non malizioso» – possa essere a volte smentito. Il bosone di Higgs: Linvenzione e la scoperta della «particella di Dio» “What is the world made of?”A couple of weeks ago there was some talk about the so called muon anomaly due to a discrepancy between the theoretical prediction and the experimental value of the muon’s magnetic moment. Most readers of science books have heard numerous times about the history of early twentieth-century quantum mechanics and its famous protagonists but for some reason rarely do we hear of the great particle physicists that followed. Baggott does precisely this and provides a very interesting historical description of particle physics particularly from the 1950s through to the 1970s culminating in the formulation of the so called Standard Model. The first half of the book focuses on the formulation of the Standard Model and is more related to theoretical physics while the second half is more directed at the experiments attempting to discover or confirm new particles or theories. The only minor

concern I had with this book is that I didn’t find it as interesting to read about the technical details involving particle colliders and accelerators and I enjoyed much more reading about the underlying theoretical concepts. He managed to make something like symmetry groups Yang-Mills quantum field theory Weinberg and Salam’s formulation of the electro-weak theory the Higgs mechanism theories on the strong nuclear force which involve quark charge and colour gluons W and Z bosons among many other “foreign” terms understandable from a popular point of view without recurring to mathematics. Il bosone di Higgs: Linvenzione e la scoperta della «particella di Dio» I knew many individual pieces of the story of how the Higgs particle was discovered and they had to borrow 15000 tons of silver from the US Treasury; the standard metaphor for how the Higgs field works was the result of a challenge from then-Cabinet Minister William Waldegrave to describe it on one sheet of paper. It's interesting to see that the plot becomes easier and easier to follow as it progresses; once they've got up to running the actual experiments and crunching the numbers it all appears very clear and he gives a convincing explanation of how it was possible to extract an unambiguous signal from such a huge amount of noise. So that bit of the book could hardly have had much time for careful editing bearing in mind publishers usually take at least a couple of months from final versions of the text to having a physical book. The first but probably not most important way it’s great is that it provides by far the best explanation of what the Higgs field is and how it is thought to work (and what the Higgs boson has to do with anything) I’ve seen – and that by a long margin. However for me it’s not so much that as the way it provides a superb introduction to the development of the standard model of particle physics our current best guess of what everything’s made of. Il bosone di Higgs: Linvenzione e la scoperta della «particella di Dio» WARNING: My opinion of ‘Higgs: The Invention and Discovery of the ‘God Particle” by Jim Baggott is based on the Amazon sample of the book which includes Prologue: 'Form and Substance' as well as on an executive summary I found @ newbooksinbrief. In Part I Section 4 of the summary entitled 'A New Understanding of Matter' I 'learn' that as Baggott explains 'the famous E=mc squared had it that mass is fully interchangeable with energy; and that therefore mass is but another form of energy'. An explanation how the so-called 'massless particle' can acquire mass!Quote from the summary:'According to the theory the Higgs field interacts with particles and slows them down in the process(loc. The degree to which the Higgs field slows down any given particle (and therefore the mass that that particle acquires) depends on the degree to which that particle interacts with the field. What produces that charged field? Massless particles?! How can massless particles have energy to produce anything? These questions are giving me a headache and I don't like books which give me a headache. The more 'stuff' it contains it appears that this book contains a good historic review of attempts to discern a whole zoo of particles some of which (bosons) are not considered as actual particles but carriers of force and some of which (fermions) are considered as actual(matter)particles. and its Folklore Il bosone di Higgs: Linvenzione e la scoperta della «particella di Dio»

Jim Baggott completed his doctorate in physical chemistry at the University of Oxford and his postgraduate research at Stanford University,

A nie dziennikarza więc posiada nietrywialne stwierdzenia poparte nieco technicznymi wywodami i definicjami, Bardzo dobrze i ciekawie opisany proces doswiadczalnego badania cząstek za pomocą

akceleratorów w CERNie czy Fermilabie, Zdecydowanie polecam! Il bosone di Higgs: Linvenzione e la scoperta della «particella di Dio» My brain hurts after thinking so much and so hard while reading this: Nevertheless I really enjoyed this book and almost cried at the end when they finally announced that it had been spotted: Il bosone di Higgs: Linvenzione e la scoperta della «particella di Dio» Not the best attempt: to present the history of Standard Model and explain its intricacies. Curious reader may also try to learn about concept of symmetry group by taking The Equation That Couldn't Be Solved: How Mathematical Genius Discovered the Language of Symmetry , The Manhattan project ran out of copper for the powerful electromagnets.

And it doesn't seem to be possible. It’s hard to imagine it wasn’t thrown together with minimum effort – and with equally minimal quality. We now interpret the extent to which the particle's acceleration is resisted by the Higgs field as the particle's (inertial) mass. It has been replaced by interactions between otherwise massless particles and the Higgs field (loc. My 'puff of logic' is telling me again not to buy this book, On the other hand.

Fascynująca książka na temat cząstek kwantów i ich odkryć, Opisuje również historię i wyboje które towarzyszyły powstawaniu teorii łącznie z modelem standardowym i unifikacją sił. Książka pisana przez fizyka I realize how the Standard Model of particles and interactions is hugely complex. all names of particles symmetry violations and ways that symmetry is broken under numerous circumstances: Therefore only gifted science writers and those who work (or worked) in the field of particle physics can provide the best shot at this subject: I would include here among others: Victor Stenger Leon Lederman Frank Wilczek Richard Feynman Helen Quinn (check them on Amazon), Then you read about 'subtracting one perturbation series from the other thereby eliminating the infinite terms'. He explains further this 'renormalization procedure' by quoting after John Gribbin that series 1+2+3+4+: This is wrong (see Lawrence Krauss' Hiding in the Mirror where he explains plenty about symmetries and that infinite series do not look like they seem). Text is flooded right from the beginning with many names and unnecessary facts about them (places where they studied for example), In short: it was hard to follow reader will most likely get bogged down amidst all this: Just because Higgs boson has been encountered recently it does not warrant any need for reading HIGGS, There are several older better and still perfectly valid books depicting history behind the Standard Model: Affrontando l'intera questione con un rigore che ne acuisce la densità intellettuale e la vertigine tecnologica Jim Baggott segue due percorsi paralleli, Il bosone di Higgs: Linvenzione e la scoperta della «particella di Dio»Baggott locates the CERN experiments in the history of particle physics: Physicists say that this could potentially break the Standard Model of particle physics though it’s still to early to tell, I had been meaning to read a book about the discovery of the Higgs boson and the Standard Model for a while so this felt like the right time to do it, We get to know Sheldon Glashow Murray Gell-Mann Steven Weinberg and many others but we also learn about their theories and work: Particle physics isn’t as accessible or as easy to describe as some other areas of physics but I thought that Jim Baggott did a remarkable job at describing it. On the way Baggott also makes sure that the history involving the various physicists is interesting: (The raw data contained billions of interaction events; only a few dozen were relevant to demonstrating the existence of the Higgs), But going backwards towards the beginnings it still seems mysterious to me. Three or four times there is magic with representations of symmetry groups and renormalization and somehow a new concept of the physical world emerges. I don't think it's Baggott's fault: I've seen several other people try to explain it in non-mathematical terms it seemed likely that this too was a botched rush job: In one sense it has to be a rushed job – the announcement was made on 4 July 2012 and the book was out by mid-August featuring said announcement: (Much of the rest of the book was written well in advance,) But the remarkable trick that Baggott and OUP have pulled off is that the rush doesn’t show. Again this is the best I’ve ever read and yet it’s here just as a setting for the Higgs business: It is really well done and the book deserves a wide readership for that alone not to mention the way it puts the Higgs into context: Like every other book I’ve read on the subject it falls down on

making the linkage between the mathematics of symmetry and the particle physics comprehensible: That is immensely difficult to do but ought to be possible, However as long as you take some of the symmetry stuff on trust the rest works superbly well: Both in its timing and its content this is a tour de force: What I wanted from this book is a real explanation of what the Higgs field is and how the so-called 'massless particles' interact with it and acquire mass, In order to make up my mind whether to buy this book or not I decided to 'taste' it first. I've just finished reading both the summary and Kindle book sample. Both the sample and the summary of the book contain numerous physics concepts which I do not understand and it seems to me they are not well explained, Though I'm not a physicist I've noticed lots of misleading things logical fallacies and inconsistencies and my impression is that this book would fail to meet my expectations. Among other things the concepts of mass and energy are wrongly interpreted and misleadingly used throughout the book which makes the explanation of the subject-matter highly confusing. For instance the first logical fallacy I came accross is Baggott's description of 'mass' in the very Prologue (loc. 227) which reads: Mass we now believe is not an inherent property or 'primary' quality of the ultimate building blocks of nature. Mass is constructed entirely from the energy of interactions involving naturally massless elementary particles. I can't help but wonder what the author wants to say with such description. If there's no such thing as mass then I do not exist and therefore I cannot buy and read the Baggott's book. The equation doesn't read E=m but E=mc squared which makes a huge difference: In addition if I have no mass (as Baggott's interpretation of the equation implies) how can I have energy i, capacity to perform any work including buying and reading this book?And now comes the best: This makes it appear as though the particle has mass in itself but truly it only acquires its mass through the nature of the interaction. 'So it appears that non-existant massless particles acquire mass because a charged field (the existence of which is to be confirmed by the Higgs bosone discovery) slows them down, Baggott further explains the process thus: our instinct is to equate inertial mass with the amount of substance that the object possesses: For this reason I give this book 2 stars which means: 'Ah well it's OK, 'To laypersons who want to read this book in spite of its faults I highly highly recommend first to read Felix Alba-Juez's book E=mc^2: The Most Famous Equation in History.POSTED AT AMAZON 2012.Stating it.

Groups and gauge. There are some excellent anecdotes.The moral is painfully obvious. I need to read more real quantum mechanics. The Higgs mechanism turns this logic on its head. The concept of mass has vanished in a puff of logic. 1189). This is bad. diverges into infinity. But the reality is very different. This is an excellent book throughout.Is it perfect? Well no.Congratulations then to author and publisher alike. Recommended.Review first published on www.popularscience.co.uk and reproduced with permission.wordpress.com. In fact there is no such thing as mass. A particle without mass does not exist. Besides if there is no mass there is no energy i.e. capacity for performing any kind of interaction/work. This interpretation of Einsein's equation is totally wrong.e. 1178). and its Folklore (Relativity free of Folkore #1) at least. Link: E=mc^2: The Most Famous Equation in History..