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PREFACE

WHY THIS HAD TO BE SAID

The 2013 Nobel Prize in physics was awarded very soon after the announcement of the discovery of a new particle at a press conference at CERN on July 4, 2012. The breaking news caused excitement worldwide. Yet the message conveyed to the public, as if something had happened like finding a gemstone among pebbles, is, if we take a sober look at the facts, at best an abuse of language, at worst, a lie.

What had been found by the researchers did not resolve a single one of the fundamental problems of physics, yet it was immediately declared the discovery of the century. Whether this claim is fraudulent, charlatanry, or just thoroughly foolish, we may leave aside; that the greatest physicists such as Einstein, Dirac or Schrödinger would have considered the "discovery" of the Higgs particle ridiculous, is sure. They would never have believed such a complicated model with dozens of unexplained parameters to reflect anything fundamental. Though on July 4, 2012, the absurdity of high energy physics reached its culmination, its folly had begun much earlier.

I shall argue that particle physics, as practiced since 1930, is a futile enterprise in its entirety. Indeed physics, after the groundbreaking findings at the beginning of the twentieth century, has undergone a paradigmatic change that has turned it into another science, or better, a high-tech sport, that has little to do with the laws of Nature. It is not uncommon in history for researchers to follow long dead ends, such as geocentric astronomy or the overlooking of the continental

drift. Often, the seemingly necessary solutions to problems, after decades of piling assumptions on top of each other, gradually turn into something that is ludicrous from a sober perspective. A few authors, such as Andrew Pickering and David Lindley, have lucidly pointed out the shortcomings, failures and contradictions in particle physics in much detail, providing, between the lines, a devastating picture. Though their conclusions may not be very different from mine, I cannot take the detached perspective of a science historian. It annoys me too much to see another generation of physicists deterred by the dumb, messy patchwork called the standard model of particle physics that hides the basic problems physics ought to deal with.

Therefore, I shall be very explicit in this book. It is written for the young scholar who wants to dig into the big questions of physics, rather than dealing with a blend of mythology and technology. It should demonstrate to the majority of reasonable physicists that the high energy subsidiary is something they would be better getting rid of, because it doesn't meet their standards. All scientists who maintain a healthy skepticism towards their particle colleagues should be encouraged to express their doubts, and the general public, many of whom intuitively felt that the irrational exuberance of July 4, 2012 had little to do with genuine science, should come to know the facts. Last but not least, it should provide journalists and people responsible for funding decisions with information they need to challenge the omnipresent propaganda.

To Whom It May Not Concern

Beware of false knowledge, it is more dangerous than ignorance – George Bernard Shaw

Needless to say, this book will hardly appeal to particle physicists, and not even lay much of a basis they will wish to discuss. There is no way to convince an expert that he or she has done nonsense for thirty years. Over the decades, high energy physicists have been hunting for ever rarer effects, just to declare as new particles everything they did not understand. Their model has grown to a nonsensical complexity nobody can oversee, thus their convictions about it rely –

much more than in any other field of physics – on trust in expert opinions (one might even say parroting). As a consequence, in any discussion with particle physicists one soon comes to know that everything is done properly and checked by many people. If you still express slight doubts about the complication, they will easily turn stroppy and claim that unless you study their byzantine model thoroughly, you are not qualified to have an opinion. But you don't have to be an ichthyologist to know when a fish stinks.

An obvious argument to make is that more than 10,000 physicists, obviously skilled and smart people, would not deal with a theoretical model if it was baloney, and presumably this is the strongest unconscious argument for all of them. It is a flawed argument, however, disproved many times in history. And it is inherently biased because it disregards all other physicists (probably the majority) who intuitively realized at the outset of their careers that a giant experiment involving a huge number of people was not the field where their creative ideas would flourish. Quantum optics, astrophysics and fields like nanotechnology have attracted the most talented in the past decades. No one who had a proper appreciation for the convictions of Einstein, Dirac, Schrödinger, Heisenberg or de Broglie could find satisfaction in post-war particle physics. This does not mean that all high energy physicists are twerps. Religion is said to make good people do evil things. To make intelligent people do stupid things, it takes particle physics. Many scientists, by the way, are busy fighting the religious nonsense that pervades the world's societies (let some political parties go unnamed). Intellectually, this is a cheap battle, and thus some are blind to the parallels of science and religion: groupthink, relying on authority, and trust to the extent of gullibility.

Though people will accuse me of promoting a conspiracy theory, I deny the charge. Most high energy physicists indeed believe that what they are doing makes sense, but they are unable to disentangle their belief from what they think is evidence. The more thoroughly one examines that evidence, however, the more frail it becomes. But, above all, it is impenetrable. Only the super-specialized understand their small portion of the data analysis, while a superficial babble is delivered to the public. This is a scandal. It is *their* business, not any-

one else's, to provide a transparent, publicly reproducible kind of evidence that deserves the name.

It is no excuse that, unfortunately, there are other degenerations of the scientific method in the realm of theoretical physics: supersymmetry, and string theory which never predicted anything about anything and never will.[1] It is a sign of the rottenness of particle physics that nobody has the guts to declare the nontestable as nonsense, though many know perfectly well that it is. They are all afraid of the collateral damage to their own shaky building, should the string bubble collapse. The continuous flow of public funding they depend so much on requires consensus and appeasement. However, experimental particle physics is somehow more dangerous to science as a whole, because with its observational fig leaves, it continues to beguile everybody that they are doing science instead of just pushing technology to the limits.

I don't care too much about the public money being wasted. We live in a rotten world where billions of dollars are squandered on bank bailouts, while every ten seconds a child dies of hunger. But the worst thing about the standard model of particle physics is the stalling in the intellectual progress of humankind it has caused. We need to get rid of that junk to evolve further.

How To Read This Book

My aim is: to teach you to pass from a piece of disguised nonsense to something that is patent nonsense. – Ludwig Wittgenstein

The first part of the book will address the principal sicknesses of particle physics, starting with a discussion of the excessive use of arbitrary, unexplained numbers in the standard model, which has always been a sign of morbidity of a theory. None of the fundamental questions that bothered the founding fathers of the successful physics of the early twentieth century are solved today, most of them being drowned out by the current drivel. A look at history reveals that there is plenty of indication that particle physics has long been

[1] I addressed that in my book *Bankrupting Physics*.

heading down a dead end, a crisis characterized by anomalies and ad-hoc fixes as described by the philosopher Thomas Kuhn.

As high energy physics is practiced today, there is plenty of room to suspect that many of its results are instrumental artifacts due to extensive filtering or theoretical mismodeling. However, even if one is confident of the analysis, it is easy to see that particle physicists continuously declare ever rarer, though banal, effects to be manifestations of their wishful theoretical thinking. By construction, it is a seemingly never-ending, epistemologically absurd process, supported by its slowness that hides the sociological nature of opinion creation by groupthink.

As happened with the Higgs, several times something has been declared as the final missing piece of the standard model. Therefore I shall tell the story of high energy physics with a somehow blasphemous point of view in part II. It is for the reader who wants to see the evolution of particle physics – how, within a few generations, the field turned its paradigms upside down and slipped into absurdity. The busy reader may skip part II and jump to part III which contains a description of the most famous popularizers and the nonsense they distribute all over the world. Luckily, YouTube is a unique archive of their ridiculous claims.

I shall also propose a way to get out of the crisis. What is desperately needed is a new scientific culture of transparency, a world in which results can be tested and repeated step-by-step by an open, unrestricted community of researchers and publicly available data. In the final chapter, I give a list of questions I would love to hear asked at press conferences, hearings, and conferences. Sometimes it would be so easy to unmask the superficial verbiage with which the field continues to throw dust in the eyes of everybody. Revenue in the form of public recognition is highly desired, and CERN lobbyists have been working hard to get it.

One particular dust-throwing event, and the inspiration for this book, was the Nobel Symposium on the Large Hadron Collider results in May 2013 in Stockholm. Coming from different fields, the members of the Nobel Prize committee have to arrive at an agreement – which is usually accomplished by a quota of awards to the

various fields. Currently, there is one string theorist, one dark matter/SUSY enthusiast, and one high energy physicist (all of them giving talks at the above seminar) on the committee, plus three reasonable physicists who, after the global hype had been generated in 2012, eventually caved in. The Royal Academy, then, had little choice but to meet the expectations. Particle physics, once again, had succeeded in selling its hokum. Therefore, it is time to stop seeing the Nobel Prize as a sacrosanct accolade for physics. In the course of the last 50 years, the award has contributed considerably to the degeneration of the search for the fundamental laws of Nature.