

THE GOD PARTICLE

*The Discovery and Modeling of the
Ultimate Prime Particle*

Ted Jaeckel

Universal Publishers
Boca Raton, Florida

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Universal Publishers
Boca Raton, Florida • USA
2007

ISBN: 1-58112- 959-9
13-ISBN:978-1-58112-959-5

www.universal-publishers.com

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The God Particle

*The discovery and modeling of the ultimate prime particle and
how it covertly underlies and is responsible for the properties of
matter and the forces of nature*

To Pat Peter and Mike

Coming up with new questions, discovering new possibilities, approaching old problems from new perspectives, requires a creative imagination and is the sign of new progress in science.
- Albert Einstein

I consider it quite possible that physics might not be based on the field concept, i.e., on continuous structures. In that case, nothing remains of my entire castle in the air, gravitation theory included, [and of] the rest of modern physics. – Albert Einstein

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Preface

This book hatched for more than 20 years. It began when my dear wife unwittingly bought me an American book on basic physics and then had to endure the ramblings of an absent minded engineer as he got to grips with all the problems that the book presented. The book was beautifully written in easy to understand language and it contained many fine illustrations to elucidate the content, but somehow every solution produced more questions than answers.

It wasn't long before I realised that many if not most theories were based on vaguely defined "fields" and usually ended in empirical equations or formulae. Why? Surely there must be more to physics? Was there no common basis for the many theories? It seemed that at the atomic level there was simply no explanation of even the simplest of problems, like what causes the electron to circumnavigate the atom, either in an orbital fashion or, even stranger, in a random sort of fashion as demanded by quantum theory.

Then came Relativity and the soul rebelled. As an engineer I live in a world that Einstein himself would have described as being "objectively real". If I push something it moves and if I keep on pushing it accelerates. To my mind Relativity was so counterintuitive that I had to believe that here was a fundamentally flawed theory. Worse was to come. In terms of sheer unbelievability, Uncertainty Theory and the outcomes of thought experiments based on it really took the cake! Parallel universes live/dead cats and the apparent ease with which the scientific community accepted this as gospel almost made me angry. Surely the Creator of the Universe would not have created such a bizarre universe. So now I have shown at least part of my colours as a biblical fundamentalist. I am in good company. Einstein for all his clever theories remained steadfast opposed to Uncertainty Theory stating that God would not choose to play dice with his creation.

I eventually decided that I would have to start from some fundamental and try to unravel what for me was a highly unsatisfactory situation. What would the fundamental be? There were really only two alternatives, a force or a particle. Because a particle could produce a force I homed in on the particle.

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This was named the Zeron, being the smallest thing this side of zero. Perhaps if I found such a particle I might equally dub it the “God Particle” the elusive sub-nuclear particle that scientists around the world seek so avidly.

Thereafter came many hundreds of models of matter and the forces of nature built up from this imaginary particle. It was a process that was periodically interrupted by the need to make a living from a small business, but it kept on coming back to haunt me time and again. Ten years down the track and I hadn't made much progress. At about this time I discovered the Internet. Instead of being continually frustrated at the lack of information in the local library, I was suddenly confronted by a seemingly endless store of information.

Developing Zeron theory at once became much easier and faster. However the theory remained in the realm of the speculative until I came to have a good look at Planck's Constant. When I discovered the link between this constant and the Zeron I knew with certainty that I was on the right track. Here at last was a direct link to conventional physics, one that could be quantified and which at the same time solved one of physics most enduring mysteries. Other discoveries came fast and furiously.

It soon became clear that the atom became distorted as it was accelerated through the new Aether which I had named the Cosma. By taking Relativity down to this Quantum level it also became clear why Relativity and Quantum Theory could never agree. By inserting a term into the Relativity equations to take account of the direction of observation, that problem disappeared into thin air. I suddenly found myself in a new universe that made utterly good engineering sense. It was a very exciting experience. The rest of the book developed relatively easily. Model after model was constructed all bearing the hallmark of lucidity and objective reality.

At the end of the day what have we landed up with? Is this the ultimate theory of everything? Well, yes and no. Yes because we seem indeed to have discovered the God Particle. Yes because the theory operates at the most fundamental level imaginable. Yes because it solves so many of the enduring mysteries of physics. Yes because it provides an overarching theory of great simplicity always the hallmark of good theory. No because the theory is really in its infancy. Most of the models are based on the simple

hydrogen atom and although the same principles apply to any atom, the devil lies in the detail. It is likely that complex atoms will make for models of mind-blowing complexity.

I have no doubt at all that this theory will be utterly rejected by the conventional scientific community. The fact is that a huge multibillion dollar industry has grown up around particle accelerators such as CERN and Fermilab. Even more billions are due to be spent on an international atom-smasher within the next decade. They seek this so-called God Particle, the all pervading but totally covert base particle of the universe. Should we have discovered this particle all would be lost and this industry would in all likelihood collapse.

My hope for the future is not to simply publish a book and introduce a new theory, but to plant the seed of a God Particle Movement wherein people who become interested also become contributors to Zeron theory. To this end, readers are encouraged to do an internet search for Zeron Wiki. There is much to be done to develop this very elementary theory into a comprehensive Theory of Everything.

Introduction

This is not a highly technical book. Besides its more serious application, which is discovering a new form of physics, the book is also meant to entertain. It can be read start to finish without detailed reference to complicated formulae. While the introduction of some formulae into the text was unavoidable, the text explains their meaning and context so that they may be skipped at first reading without detracting substantially from the thrust of the book.

In this respect the book is unique, dealing with highly technical subject matter in, as far as is possible, a common sense and non-technical manner. This has been achieved by constructing easily visualisable models of matter and the forces of nature. It is also unique in its approach to the work of such great names in physics as Einstein, Michaelson & Morley, Young, Heisenberg, Bohr, Aspect and others. The book is pretty irreverent and pokes holes in theory wherever holes need to be poked regardless of the reputations of the scientist involved. This was done not through arrogance, but through the unassailable logic that the new Zeron Theory permitted. It opened many doors previously thought to be impregnable.

At the start of each chapter is a summary of what that chapter contains. This was a deliberate strategy to prepare the reader for what is frequently a revolutionary outcome within the chapter. It's a sort of mental preparation for what follows. Sometimes the outcomes surprised even the writer but this is what made the writing of this book so exciting.

All in all, the theory presented here covers an extremely broad range of physics from the sub-atomic to the cosmic. However the theory is really in its infancy. Notwithstanding, it does lay the groundwork for a fresh new look at all the theories of physics.

Chapter 1

What we know

It is a common perception that we seem to know just about everything about everything. In physics this is far from the truth especially as far as fundamentals are concerned. There's something very strange going on.

We know an awful lot. Mainly we know how to make things and make things work. Consider the modern world we live in. We know how to make microscopes that are so powerful that they can detect the atomic structure of a metal surface. At the other end of the scale, we know how to build telescopes capable of detecting a one-candle power light on the surface of the moon or detecting light from galaxies at the very edge of our universe. We can make spacecraft that enable man to walk on the moon or build a space station of gigantic proportions rushing around the earth in everlasting orbit. We know how to build ordinary cars whose inbuilt computer power exceeds that of the moon landing craft by a factor of 10. We know how to build supercomputers that can do 10's of millions of calculations per second. More frighteningly we know how to destroy the planet by manufacturing atomic bombs in such profusion that if detonated would signal the end of life on earth. Modern life is crammed with computers television sets, cell phones and all manner of electronic gadgets. The list is endless and the future is pregnant with soon-to-be marvels of man's ingenuity. Yes we certainly know how to make things work. Virtually all of these marvels have their roots in physics.

We seem to know everything about everything and our knowledge base grows exponentially. Surely there is little to find out about. And yet, is this really true? We are about to embark on a journey that will convince you that lurking underneath all we know is another universe, invisible, undetectable yet utterly real. It controls everything around us. It is responsible for every force of nature and every particle of matter. If we find it, the discovery will have the potential of revising all the current knowledge of the physical world we live in.

Chapter 2

What We Think We Know

We examine the current state of physics and the potential for expanding our knowledge as the availability of information explodes on the Internet. Mankind is evolving at an exponential rate. It's the evolution of the mind. But Physics is a moving target and information is soon outmoded. As new discoveries are made, there seems to be no sign of convergence of the new data towards a simpler over-arching theory. The more that is discovered, the more complex the theories become. Even the theory of the expanding universe, seemingly well established many years ago, was recently radically altered. In order to make real progress we will have to be willing to critically re-examine even the most accepted theories and make a fresh start to try and discover the mysterious sub-universe.

If we are to believe the anthropologists, mankind has been evolving to its present state over a period of 3.5 million years. The earliest examples of hominids bear little resemblance to modern man. The cranium was much smaller and the size of the brain was 400 cc. Modern man's brain (Homo Sapiens) occupies a volume of about 1400 cc. Of course that doesn't necessarily mean that our thinking ability has increased proportionately because scientists tell us that we only use 10 % of our 1400 cc and nobody knows what proportion the earliest hominids used. What is clear is that the brain seems to have abundant spare capacity. Numerous studies of people who have lost a complete hemisphere of the brain in an accident are testimony to the ability of the brain to take on extra work. The other half of the brain learns to cope with all the bodily and cognitive functions.

Evidence for the evolution of mankind from the primitive to the modern seems to be well established from skeletal remains. Analysis of stone-age tools shows a steady increase of knowledge and skill. Now however many millennia later, a completely different sort of evolution of the human species has taken place. It has taken place almost unnoticed. It will not be found in skeletal

remains or in measuring the size of the brain. It is to be found in the evolution of the mind.

Before the invention of writing or hieroglyphics, the repository of all knowledge was in the memory of the individual. Knowledge was basically acquired and remembered by the direct experience. A certain store of knowledge was also passed on verbally from parent to child. Much of this knowledge got lost along the way or was forgotten so an individual's store of knowledge remained very limited.

It is not generally appreciated that we owe our vastly expanded knowledge to the invention or evolution of the written word. Imagine if everything you know had to be passed onto you verbally. Your store of knowledge would be very limited indeed. The written record changed that forever. Initially, knowledge carried by the written records was utilised by the select few that could read and write, the scribes, priests and suchlike. However, documents in whatever form were handwritten or carved or imprinted on clay tablets and were as scarce as hen's teeth, so the total store of knowledge remained very limited.

Then came the printing press and the possibility of mass producing many copies of the written word. Suddenly all of the accumulated knowledge of the world became accessible, at least in theory, to all who could read. Mankind's total store of knowledge exploded as ever more people wrote and disseminated books and others read them and accumulated this knowledge. The age of enlightenment wherein those who chose to could learn the wisdom of the ages became a possibility for the first time in human history. Books and paper ensured that the world's store of knowledge expanded exponentially.

We now are on the verge of an even greater quantum leap. We live in the information age wherein information can be stored digitally and distributed electronically. The Internet has provided us with a seemingly inexhaustible font of knowledge, although it must be admitted that much of what is there is of little value to anyone. However when one searches for a topic on a search engine such as Google and it searches 10 000 000 000 pages to find the information you are looking for then there is a realistic chance that you will find what you are looking for somewhere on the net and add it to your store of knowledge. This is but the beginning. In a move that is as significant as the invention of the printing press,

Google recently announced that it had committed to digitizing 25 million books and documents presently under the control of major libraries and make them freely available on the Internet. At last this vast store of knowledge will be available at the push of a mouse.

What has all this to do with a book that is primarily concerned with physics? One might imagine that now we have so much information at our disposal that the fundamentals of physics are not only known but also that they are cast in stone. If it were not so, someone would be on the "net" challenging conventional physics wisdom. A brief search on the net shows that literally thousands of people are completely disillusioned with the state of physics as it now exists. There are as many theories. The common thread is that everyone is searching for the fundamentals that would better explain the nature of matter and the forces of nature. It's a revolution against conventional physics that seems to have all but lost its sense of reality. If our mysterious hidden universe seems to be far-fetched, then the universe of conventional physics is more so. Conventional physics whose thought experiments far outweigh science fiction for the audacity of the concepts has taken a giant leap into the quasi-paranormal to its own detriment,

No, physics as known today is *not* cast in stone. Every new discovery brings more questions than answers, so we might be forgiven for thinking that something is wrong at the fundamental level. The fact is that in the field of modern physics, most information has got a very short sell-by date. What was cutting edge physics a year or two ago is out of date today. The touchstone of truth in physics has always been the discovery of simple solutions to complex problems. But all in all if we look at modern physics, there is absolutely no sign of convergence wherein every discovery would point to a sort of simplifying master theory. It just gets more complex all the time.

As one example of new discoveries producing more questions than answers, consider the argument that raged in the scientific community about whether there was enough matter to gravitationally slow down the expansion of the universe and perhaps cause it to collapse in on itself. The theory was driven, not by what scientists had observed, but by what they thought would be a neat solution to the origins of the universe. How nice it would be to say that the universe had no beginning or end but that it

cycled between a state of singularity, a big bang, an expansion, and a collapse back to a singularity, and so on ad infinitum. Now it turns out that measurements have shown that the universe is not only expanding but that the expansion is accelerating! The inevitable conclusion is that the universe had a discrete beginning. There are no theories that even remotely explain what forces cause this acceleration and, for the time being, the scientific community is in disarray as it tries to figure out what causes this phenomenon. It's a major mystery.

It is said, not without good cause, that major progress in physics is built on the graves of physicists. Indeed it seems that historically, the greatest hindrance to progress in the sciences has always been the reluctance of established scientists to honestly examine alternative theories. This is very understandable. The scientist is dependent on his particular expertise for his very existence. He has built his reputation on knowing more than other lesser mortals about his discipline. His very reputation and livelihood are on the line. What if the very basis of his expertise were shown to be false? It would be a total disaster for most leading scientists. They therefore guard and defend their theories jealously and resist any competing theory especially if such theory emanates from outside the "establishment". I once contacted a leading physicist about the theory that will shortly be revealed in this book, giving enough critical information for him to be able to assess whether the theory had any merit. His response was to tell me to get a Masters degree in physics, proceed to a Doctorate and submit the theory to the critical examination by peers in the professional journals, "because this is the way it is done". He showed no interest whatever in the rather startling outcomes of a theory which if correct would impact seriously on the whole discipline of physics.

I am full of admiration for the brilliant minds of the scientists past and present, mainly because I now realise how the deck has been stacked against them all this time. In spite of the handicap of the rather shaky foundations of the discipline and having been led down many false trails, they have managed to come up with so many brilliant solutions to physics problems. My job has been much, much simpler. By casting off all the baggage of fundamental assumptions, a very simple (some might say naive) theory has evolved that enables us to view matter in a completely

different and much simpler way. The prerequisite for appreciating the theories presented in this book is a completely open mind. The theories of some pretty big names in the physics world will come under scrutiny and some very well established theories will be challenged. Make your own assessment, free of the burden of pre-conceived ideas especially the idea that we know it all in the world of physics. Come and join the evolution of the mind as we try to find the God Particle and unravel the mysterious sub-universe.