

## 1: Nobel Prize - Wikipedia

*The Nobel Prize in Physics was awarded jointly to François Englert and Peter W. Higgs "for the theoretical discovery of a mechanism that contributes to our understanding of the origin of mass of subatomic particles, and which recently was confirmed through the discovery of the predicted.*

Tsien for their work on green fluorescent protein or GFP. However, Douglas Prasher was the first to clone the GFP gene and suggested its use as a biological tracer. Somorjai and Ertl had previously shared the Wolf Prize for Chemistry in . This is a central technique in molecular biology which allows for the amplification of specified DNA sequences. Gobind Khorana , had an earlier and better claim to the discovery dating from . Others Henry Eyring â€” allegedly failed to receive the prize because of his Mormon faith. He completed his first periodic table in . However, a year earlier, another chemist, Julius Lothar Meyer , had reported a somewhat similar table. In , John Alexander Reina Newlands , presented a paper that first proposed a periodic law. However, none of these tables were correctâ€”the 19th century tables arranged the elements in order of increasing atomic weight or atomic mass. It was left to the English physicist Henry Moseley to base the periodic table on the atomic number the number of protons. Mendeleev died in , six years after the first Nobel Prizes were awarded. He came within one vote of winning in , but died the next year. As of [update] , the faculty of the University of Chicago had garnered nine Prizesâ€”far more than any other university. This led to claims of bias against alternative or heterodox economics. Krugman was a fierce critic of George W. The award produced charges of a left-wing bias, with headlines such as "Bush critic wins Nobel for economics", prompting the prize committee to deny "the committee has ever taken a political stance. During March , Friedman visited Chile and gave lectures on inflation, meeting with Pinochet and other government officials. Many indisputably major authors have been ignored by the Nobel Committee, possibly for political or extra-literary reasons. During World War I and its immediate aftermath, the committee adopted a policy of neutrality, favoring writers from non-combatant countries. Narayan , an Indian writer known for his works set in the fictional South Indian town of Malgudi and the abridged versions of the Indian epics â€” The Ramayana and The Mahabharata. Despite being nominated and shortlisted for the Nobel Prize in Literature multiple times, [44] Narayan never won the honor. Narayan should have indeed won the Nobel Prize. Other humorous speculations on what might have tripped him, "His writing is too simple, and too readable, requiring no effort on the part of the reader. He has created a new map called Malgudi in which his characters live and die. Story after story is set in the same place, which is not progressive, a rather stagnant background. Swedes have received more prizes than all of Asia. In , Horace Engdahl , then the permanent secretary of the Academy, declared that "Europe still is the center of the literary world" and that "the US is too isolated, too insular. We tend to relate more easily to literature written in Europe and in the European tradition. Bellow won in ; neither Greene nor Nabokov took home the prize. His works there were available only in samizdat -published, clandestine form. After the Swedish government refused to hold a public award ceremony and lecture at its Moscow embassy, Solzhenitsyn refused the award altogether, commenting that the conditions set by the Swedes who preferred a private ceremony were "an insult to the Nobel Prize itself. In the first year, the prize went to French poet Sully Prudhomme , the year after to German historian Theodor Mommsen. Malraux was competing with Albert Camus , but was rejected several times, especially in and , "so long as he does not come back to novel", while Camus won the prize in . Criticism that have been levelled against some of the awards include allegations that they were politically motivated, premature, or guided by a faulty definition of what constitutes work for peace. Among other objections, some former laureates disputed the award, claiming that the EU is "clearly not a champion of peace". Liu was imprisoned at the time of the award and neither he nor his family were allowed to attend the ceremony. Relations were normalized in December . Obama himself said that he felt "surprised" by the win and did not consider himself worthy of the award, but nonetheless accepted it. But, there are other things also, which we looked at, for instance, the fact that he started immediately to build bridges to the Muslim world throughout the time. She later denied these claims, although the Standard stood by its reporting. Bush to use military force against Iraq in order to enforce UN Security

Council resolutions requiring that Baghdad give up weapons of mass destruction. Asked if the selection of the former president was a criticism of Bush, Gunnar Berge, head of the Nobel Prize committee, said: Criticisms argued that Kim made a historical event in North Korea, which was tainted significantly by allegations that at least several hundred million dollars had been paid to Pyongyang. His Chief of Staff, Park Ji-won, was sentenced to twelve years in prison in for, among other charges, his role in the Hyundai payment to North Korea for the North-South summit. Criticism for this award was due to the fact that the Soviet President destabilised the Eastern bloc and caused the economic collapse and fall of the Soviet Union. Additionally, the Nobel Prize Committee cited their intention to put pressure on China, due to the Tiananmen Square Massacre which happened in June. The prize was controversial [citation needed] because both had fought against British rule of their respective countries, and Begin was involved in a failed plot to assassinate German chancellor Konrad Adenauer. Kissinger "for the Paris Peace Accords intended to bring about a cease-fire in the Vietnam War and a withdrawal of the American forces". He also supported the Turkish Intervention in Cyprus resulting in the de facto partition of the island. Two Norwegian Nobel Committee members resigned in protest. Louis sailed from Hamburg in the summer of carrying over Jewish refugees, seeking asylum from Nazi persecution. Roosevelt showed some willingness to take in some of those on board, but Hull and Southern Democrats voiced vehement opposition, and some of them threatened to withhold their support of Roosevelt in the election. On 4 June Roosevelt denied entry to the ship, which was waiting in the Florida strait between Florida and Cuba. The passengers began negotiations with the Cuban government, but those broke down. Forced to return to Europe, over a quarter of its passengers subsequently died in the Holocaust. In an unprecedented move, King Haakon VII of Norway was absent from the award ceremony, two committee members resigned in protest, and the Norwegian conservative press, including leading daily Aftenposten, condemned giving the award to a convicted criminal. Ossietzky, interned in the concentration camp Esterwegen and severely ill with tuberculosis, accepted the award by letter but was prevented from traveling to Oslo. In Gandhi received six letters of nomination and was on the short list for the Peace Prize but he was assassinated on 30 January, two days before the closing date for nominations. Geir Lundestad, Secretary of Norwegian Nobel Committee in said, "The greatest omission in our year history is undoubtedly that Mahatma Gandhi never received the Nobel Peace prize. Gandhi could do without the Nobel Peace prize, [but] whether Nobel committee can do without Gandhi is the question". Despite the contributions of the upwards of a thousand scientists and engineers in LIGO, the Nobel Committee continued its tradition of only awarding the prize to three physicists. Thorne said "It is unfortunate that, due to the statutes of the Nobel Foundation, the prize has to go to no more than three people, when our marvelous discovery is the work of more than a thousand. Smith for developing the CCD. Gordon and Michael Francis Tompsett claimed that it should have been theirs for establishing that the technology could be used for imaging. This postulated the existence of three additional quarks beyond the three then known to exist and used this postulate to provide a possible mechanism for CP violation, which had been observed 8 years earlier. The resulting quark mixing matrix, which described probabilities of different quarks to turn into each other under the action of the weak force, is known as CKM matrix, after Cabibbo, Kobayashi, and Maskawa. Cabibbo arguably merited a share of the award. Mather and George F. In January, Andrei A. Brukhanov presented a seminar at Sternberg Astronomical Institute in Moscow, where he first reported on the discovery. Glauber "for his contribution to the quantum theory of optical coherence". This research involved E. According to others, the deserving Leonard Mandel and Daniel Frank Walls were passed over because posthumous nominations are not accepted. Fowler acknowledged Fred Hoyle as the pioneer of the concept of stellar nucleosynthesis but that was not enough for Hoyle to receive a share. George Sudarshan and Robert Marshak were the first proponents of the successful V-A vector minus axial vector, or left-handed theory for weak interactions in. It was essentially the same theory as that proposed by Richard Feynman and Murray Gell-Mann in their "mathematical physics" paper on the structure of the weak interaction. The theory is popularly known in the west as the Feynman-Gell-Mann theory. It was conceived in the face of a series of apparently contradictory experimental results, including several from Chien-Shiung Wu. It was also aided along by a sprinkling of other evidence, like the muon. Discovered in, the muon had a curious and colorful history [] all to itself and would itself lead

on to a new revolution [] in the 21st century. The V-A theory would form the foundation for the electroweak interaction theory later on. Sudarshan regarded the V-A theory as his finest work. Robert Oppenheimer , [] â€” was only to be disparaged later on as "less complete" and "inelegant" by John Gribbin. Many scientists felt that Ralph Alpher , who predicted the cosmic microwave background radiation and in worked out the underpinnings of the Big Bang theory , should have shared in the prize or received one independently. In , Alpher received the National Medal of Science for his pioneering contributions to understanding of nucleosynthesis , the prediction of the relic radiation from the Big Bang, as well as for a model for the Big Bang. Ryle for his observations and inventions, in particular of the aperture synthesis technique, and Hewish for his decisive role in the discovery of pulsars ". Hewish was not the first to correctly explain pulsars, initially describing them as communications from "Little Green Men" LGM-1 in outer space. The notion that pulsars were neutron stars , leftovers from a supernova explosion, had been proposed in . Soon after their discovery, Fred Hoyle and astronomer Thomas Gold correctly explained it as a rapidly spinning neutron star with a strong magnetic field, emitting radio waves. Bell Burnell has since been recognized with a Special Breakthrough Prize in Fundamental Physics, which includes three million dollars. George Zweig , then a PhD student at Caltech , independently espoused the physical existence of quarks, essentially the same thing. Unfortunately, Zweig did not publish his results in a peer-reviewed journal, although his work was widely available as a CERN preprint. However, the committee did not recognize numerous preceding patent applications. As early as , Julius Edgar Lilienfeld patented several modern transistor types. Shockley was part of other controversies [] â€”including his position as a corporate director and his self-promotion efforts. His share of the prize resulted from his development of the superior junction transistor , which became the basis of the electronics revolution.

### 2: First woman Physics Nobel winner in 55 years - BBC News

*The Nobel Prize in Physics was awarded jointly to François Englert and Peter W. Higgs "for the theoretical discovery of a mechanism that contributes to our understanding of the origin of mass of subatomic particles, and which recently was confirmed through the discovery of the predicted fundamental particle, by the ATLAS and CMS experiments at CERN's Large Hadron Collider".*

Two of the Nobel prizes winners in medicine Rothman and Schekman are Jewish http: Of the two physics laureates, Englert is not only Jewish but is also a professor at Tel Aviv University: Banach, who was pure goy, thought it was one of the funniest sayings he had ever heard. He was enchanted by its implication that if the goys could do it, Johnny and I ought to be able to do it better. Johnny did not invent this joke, but he liked it and we started using it. Oct 9, , 1: That is why I am proposing that in order to encourage young physicists to do experimental high energy physics, or astrophysics or many of the disciplines that require group work of many people, there should be a different prize, recognizing the dedication and good work performed by the group as a whole. The way it is going young physicists will be choosing subjects that would allow them to shine by themselves. That would be the end of experimental high energy physics at least until robotics advances enough to replace physicists and string theory will never be validated and will remain a mathematical proposition. Let us take one experiment which has physicists signing the Higgs paper. Maybe half of them are graduate students whose contribution to the Higgs paper has been shifts upon shifts of data taking. The original bit in their thesis will be the study of a paraicular channel for a particular interaction and there the can show their ingenuity. Or if their talents are computational the design of a specific trigger for a specific interaction etc. None of these are Nobel level original researches, as is true for the grand majority of thesis written in physics and not only. One adds a small stone on the edifice being validated. There are some "original" experimental proposals: If found then the experimentalist who fueled the interest on the subject to the rest of the group will be eligible, as was Rubbia with the W and Z when they were a gleam in theorists eyes and he moved the earth to get the collider going so they could find them. The present collider was a collaborative effort of the HEP community, no strong personalities behind the decision but careful weighted arguments for a discovery machine. I am just making the observation that as time goes on it will be hard to find brilliant graduate students and post docs to enter the HEP experimental field, and then theories will become just mathematical guesses. Oct 10, , 1: There are quite many other very respectable prizes and it would certainly be a good idea to have one especially for groups of experimentalists. On the other hand, I am getting a little fed up of people referring to "mathematical games". There are indeed "mathematical games" and sometimes they involve quite beautiful mathematics to those who believe that beautiful mathematics must derive from physics I recommend J. I want to add here a second way how an experimental high energy physicist might become eligible for the Noble as is, at this day and age. For example there exists the soft photon anomaly http: Suppose , and this is just for an example, it turns out that it is a clear signal of the string structure of the fundamental particles. Then the experimentalists that patiently pursued and established the signal over many experiments would be eligible, in my opinion. Right but so far it looks too vague for a "discovery", right? What could it be?

## 3: List of Nobel Prize winners in Physics - Simple English Wikipedia, the free encyclopedia

*Nobel Prize in Physics Francois Englert and Peter Higgs won this year's Nobel Prize in Physics for predicting the Higgs mechanism, the process that gives elementary particles their mass. This comes one year after CERN observed the Higgs boson at the Large Hadron Collider.*

Working independently in the s, they came up with a theory for how the fundamental building blocks of the universe clumped together, gained mass and formed everything we see around us today. The theory hinged on the existence of a subatomic particle that came to be called the Higgs boson or the "God particle. In a statement issued by the University of Edinburgh, where he retired as a professor, the famously shy, year-old Higgs said he hoped the prize would help people recognize "the value of blue-sky research. Still, "we had the impression that we were doing something that was important, that would later on be used by other researchers. But this time, the prize went to people who were widely expected to get it. Englert and Peter Higgs of Britain won the Nobel Prize in physics on Tuesday for their theory on how the most basic building blocks of the universe acquire mass, eventually forming the world we know today. The question was if there would be a third and who it would be," said Joe Incandela, a professor of physics at the University of California at Santa Barbara and leader of the CMS experiment, one of the two groups that discovered the Higgs particle. Before the announcement, there had been questions over whether a group of American scientists who published a paper shortly after Higgs would also be honored, or whether any of the thousands of scientists at CERN would share in the prize, too. But that would have been a tricky decision for the judges, since each Nobel Prize can go to only three winners. It means the final building block in the so-called Standard Model for particle physics has been put in place, so it marks a milestone in the history of physics," Danielsson said. Englert and Higgs were trying to provide an answer to a riddle: How did matter form soon after the Big Bang? The building blocks of matter, they suggested, acquired mass when this field trapped them. Much later, as the universe cooled, they formed atoms that eventually became stars and planets. To detect the field, the scientists suggested looking for the Higgs boson, because all fields are associated with a particle. Decades would pass before scientists were able to confirm the existence of this particle. Only about one collision per trillion will produce a Higgs boson in the giant atom collider, and it took CERN several months after the discovery of a new "Higgs-like" boson to conclude that the particle was, in fact, very much like the one expected in the original formulation. This undated photo released on Monday Oct. The Royal Swedish Academy of Sciences cited the two scientists for the "theoretical discovery of a mechanism that contributes to our understanding of the origin of mass of subatomic particles. Lederman said later that the phrase "mostly used by laymen" was really meant to convey that he felt it was the "goddamn particle," because it proved so hard to find. That means it points the way to tackling mysteries such as the nature of dark energy and dark matter, he said. On Monday, the Nobel in medicine was given to U. Higgs are jointly awarded the Nobel Prize in Physics for the theory of how particles acquire mass. In , they proposed the theory independently of each other Englert together with his now deceased colleague Robert Brout. In , their ideas were confirmed by the discovery of a so called Higgs particle at the CERN laboratory outside Geneva in Switzerland. The awarded theory is a central part of the Standard Model of particle physics that describes how the world is constructed. According to the Standard Model, every thing, from flowers and people to stars and planets, consists of just a few building blocks: These particles are governed by forces mediated by force particles that make sure everything works as it should. The entire Standard Model also rests on the existence of a special kind of particle: This particle originates from an invisible field that fills up all space. Even when the universe seems empty this field is there. Without it, we would not exist, because it is from contact with the field that particles acquire mass. The theory proposed by Englert and Higgs describes this process. On 4 July , at the CERN laboratory for particle physics, the theory was confirmed by the discovery of a Higgs particle. Even though it is a great achievement to have found the Higgs particle "the missing piece in the Standard Model puzzle" the Standard Model is not the final piece in the cosmic puzzle. One of the reasons for this is that the Standard Model treats certain particles, neutrinos, as being virtually massless, whereas recent studies show that they

actually do have mass. Another reason is that the model only describes visible matter, which only accounts for one fifth of all matter in the cosmos. To find the mysterious dark matter is one of the objectives as scientists continue the chase of unknown particles at CERN. This undated image made available by CERN shows a typical candidate event in the search for the Higgs boson, including two high-energy photons whose energy depicted by red lines is measured in the CMS electromagnetic calorimeter. The yellow lines are the measured tracks of other particles produced in the collision. A closer look at the Higgs boson So what is the Higgs boson, the elusive particle that physicists Peter Higgs and Francois Englert theorized about and won the Nobel Prize for on Tuesday? Everything we see around us is made of atoms, inside of which are electrons, protons and neutrons. And those, in turn, are made of quarks and other subatomic particles. Scientists have wondered how these tiny building blocks of the universe acquire mass. One theory proposed separately by Higgs and Englert is that a new particle must be creating a "sticky" energy field that acts as a drag on other particles. Atom-smashing experiments at CERN have since confirmed that this particle exists in a form that is similar to "but perhaps not exactly like" what was proposed. The fact that it does exist gives more weight to the so-called Standard Model of particle physics, which explains how much of the universe works at the subatomic level. Scientists say there is still work to be done, especially because neutrinos "subatomic particles that were previously thought to be without mass" do now appear to have mass. This includes the salaries of thousands of scientists and support staff around the world who have collaborated on the two experiments that independently pursued the Higgs particle. The vast computing power needed to crunch all of the data produced by the atom smasher has also boosted the development of cloud computing, which has found its way into the mainstream as sophisticated web applications. Advances in solar energy capture, medical imaging and proton therapy to fight cancer have also resulted from the work of particle physicists at CERN and elsewhere.

### 4: Nobel Prizes and Laureates - [www.enganchecubano.com](http://www.enganchecubano.com)

*The Nobel Prize in Physics (Swedish: *Nobelpriset i fysik*) is a yearly award given by the Royal Swedish Academy of Sciences for those who have made the most outstanding contributions for mankind in the field of physics.*

Nominations[ edit ] Nomination forms are sent by the Nobel Committee to about 3, individuals, usually in September the year before the prizes are awarded. These individuals are generally prominent academics working in a relevant area. Regarding the Peace Prize, inquiries are also sent to governments, former Peace Prize laureates, and current or former members of the Norwegian Nobel Committee. The deadline for the return of the nomination forms is 31 January of the year of the award. All nomination records for a prize are sealed for 50 years from the awarding of the prize. This, along with the list of preliminary candidates, is submitted to the prize-awarding institutions. Their decision, which cannot be appealed, is announced immediately after the vote. Except for the Peace Prize, which can be awarded to institutions, the awards can only be given to individuals. This has occurred twice: Since , laureates must be thought alive at the time of the October announcement. There has been one laureate, William Vickrey , who in died after the prize in Economics was announced but before it could be presented. Steinman , had died three days earlier. Early on, the awards usually recognised recent discoveries. For example, Johannes Fibiger was awarded the Prize in Physiology or Medicine for his purported discovery of a parasite that caused cancer. The Literature Prize is typically awarded to recognise a cumulative lifetime body of work rather than a single achievement. For example, laureate Martti Ahtisaari was awarded for his work to resolve international conflicts. Sometimes, this takes decades â€” for example, Subrahmanyan Chandrasekhar shared the Physics Prize for his s work on stellar structure and evolution. Some discoveries can never be considered for a prize if their impact is realised after the discoverers have died. The award ceremonies and the associated banquets are typically major international events. It is said that he changed his mind once his attention had been drawn to the publicity value of the prizes for Sweden. Apart from the laureate, guests include the President of the Storting , the Swedish prime minister, and, since , the King and Queen of Norway. In total, about guests attend. Nobel lecture[ edit ] According to the statutes of the Nobel Foundation, each laureate is required to give a public lecture on a subject related to the topic of their prize. The laureate is only obliged to give the lecture within six months of receiving the prize. Some have happened even later. In , the Mint of Norway, located in Kongsberg, made the medals. The Nobel Prize medals are registered trademarks of the Nobel Foundation. The medals for physics, chemistry, physiology or medicine, and literature have identical obverses, showing the image of Alfred Nobel and the years of his birth and death. The reverse sides of the medals for chemistry and physics share the same design. All medals made before were struck in 23 carat gold. Since then, they have been struck in 18 carat green gold plated with 24 carat gold. The weight of each medal varies with the value of gold, but averages about grams 0. The diameter is 66 millimetres 2. When Germany invaded Denmark, Hungarian chemist and Nobel laureate himself George de Hevesy dissolved them in aqua regia nitro-hydrochloric acid , to prevent confiscation by Nazi Germany and to prevent legal problems for the holders. After the war, the gold was recovered from solution, and the medals re-cast. Each diploma is uniquely designed by the prize-awarding institutions for the laureates that receive them. None of the Nobel Peace Prize laureates has ever had a citation on their diplomas. The purse has increased since the s, when the prize money was , SEK per prize c. If there are three, the awarding committee has the option of dividing the grant equally, or awarding one-half to one recipient and one-quarter to each of the others. Among other criticisms, the Nobel Committees have been accused of having a political agenda, and of omitting more deserving candidates. They have also been accused of Eurocentrism , especially for the Literature Prize. This led to the resignation of two Norwegian Nobel Committee members. However, when the award was announced, both sides were still engaging in hostilities. Ahnlund resigned, alleging that the selection of Jelinek had caused "irreparable damage to all progressive forces, it has also confused the general view of literature as an art". According to The Washington Post , many US literary critics and professors were ignorant of her work. The previous year, Dr. Walter Freeman had developed a version of the procedure which was faster and easier to carry out. Gandhi could do without the

Nobel Peace prize. Whether Nobel committee can do without Gandhi is the question". He consulted staff and later replied that he would. At the same time, Chairman Gunnar Jahn.

## 5: Einstein's waves win Nobel Prize in physics - BBC News

*The first Nobel Prize in Physics was awarded in to Wilhelm Conrad Röntgen, of Germany, who received , SEK, which is equal to 7., SEK in December John Bardeen is the only laureate to win the prize twice*

When his father relocated to Bedford , Higgs stayed behind with his mother in Bristol , and was largely raised there. He was awarded an Research Fellowship from the Royal Commission for the Exhibition of , [24] and performed his doctoral research in molecular physics under the supervision of Charles Coulson and Christopher Longuet-Higgins. He then held various posts at Imperial College London , and University College London where he also became a temporary lecturer in Mathematics. He returned to the University of Edinburgh in to take up the post of Lecturer at the Tait Institute of Mathematical Physics, allowing him to settle in the city he had enjoyed while hitchhiking to the Western Highlands as a student in He retired in and became Emeritus professor at the University of Edinburgh. He was awarded the Rutherford Medal and Prize in He received an honorary degree from the University of Bristol in In he received an Honorary Fellowship from Swansea University for his work in particle physics. Higgs postulated that this field permeates space, giving mass to all elementary subatomic particles that interact with it. In these, gluons that bind quarks together confer most of the particle mass. Higgs wrote an extra paragraph and sent his paper to Physical Review Letters , another leading physics journal, which published it later in This paper predicted a new massive spin-zero boson now known as the Higgs Boson. Hagen and Tom Kibble [39] had reached similar conclusions about the same time. In the published version Higgs quotes Brout and Englert and the third paper quotes the previous ones. The three papers written on this boson discovery by Higgs, Guralnik, Hagen, Kibble, Brout, and Englert were each recognized as milestone papers by Physical Review Letters 50th anniversary celebration. The mechanism had been proposed in by Philip Anderson although he did not include a crucial relativistic model. He is the fifth person to receive the Award, which was established in by the City of Edinburgh Council to honour an outstanding individual who has made a positive impact on the city and gained national and international recognition for Edinburgh. The event also marked the unveiling of his handprints in the City Chambers quadrangle, where they had been engraved in Caithness stone alongside those of previous Edinburgh Award recipients. Higgs Centre for Theoretical Physics[ edit ] On 6 July , Edinburgh University announced a new centre named after Professor Higgs to support future research in theoretical physics. The Higgs Centre for Theoretical Physics [47] brings together scientists from around the world to seek "a deeper understanding of how the universe works". The university has also established a chair of theoretical physics in the name of Peter Higgs. He also expressed cynicism towards the honours system , and the way the system "is used for political purposes by the government in power". The order confers no title or precedence, but recipients of the order are entitled to use the post-nominal letters CH.

### 6: Peter Higgs - Wikipedia

*The Nobel Prize in Physics has been awarded times to Nobel Laureates between and John Bardeen is the only Nobel Laureate who has been awarded the Nobel Prize in Physics twice, in and This means that a total of individuals have received the Nobel Prize in Physics.*

Oct 8, 2012. And it was for good reason. In 1964, their ideas were confirmed by the discovery of a so called Higgs particle at the CERN laboratory outside Geneva in Switzerland. When I meet him, I will congratulate him for this brilliant and important work. The RSAS said the awarded theory is a central part of the Standard Model of particle physics that describes how the world is constructed. According to the Standard Model, everything, from flowers and people to stars and planets, consists of just a few building blocks: These particles are governed by forces mediated by force particles that make sure everything works as it should. The entire Standard Model also rests on the existence of a special kind of particle: This particle originates from an invisible field that fills up all space. Even when the universe seems empty this field is there. Without it, we would not exist, because it is from contact with the field that particles acquire mass. The theory proposed by Englert and Higgs describes this process. On 4 July 2012, at the CERN laboratory for particle physics, the theory was confirmed by the discovery of a Higgs particle. Even though it is a great achievement to have found the Higgs particle – the missing piece in the Standard Model puzzle – the Standard Model is not the final piece in the cosmic puzzle. One of the reasons for this is that the Standard Model treats certain particles, neutrinos, as being virtually massless, whereas recent studies show that they actually do have mass. Another reason is that the model only describes visible matter, which only accounts for one fifth of all matter in the cosmos. To find the mysterious dark matter is one of the objectives as scientists continue the chase of unknown particles at CERN. Englert was first to publish the idea, in 1964, of a field that interacted with fundamental particles and gave them mass; Higgs was the first to point out, merely a few weeks later, the potential existence of the eponymous boson. However, the experiment is far from finished. The scientists at CERN hope to bring further ground-breaking discoveries in the years to come. Another reason is that the model only describes visible matter, which only accounts for one fifth of all matter in the universe. The rest is dark matter of an unknown kind. It is not immediately apparent to us, but can be observed by its gravitational pull that keeps galaxies together and prevents them from being torn apart. In all other respects, dark matter avoids getting involved with visible matter. The Higgs particle is special; maybe it could manage to establish contact with the enigmatic darkness. Scientists hope to be able to catch, if only a glimpse, of dark matter, as they continue the chase of unknown particles in the LHC in the coming decades. Physics was the prize area which Alfred Nobel mentioned first in his will. At the end of the nineteenth century, many people considered physics as the foremost of the sciences, and perhaps Nobel saw it this way as well. His own research was also closely tied to physics. The discovery of what was dubbed by some as the God particle has been called one of the most important finds in the history of science, as it confirms the standard model of the universe and helps explain why particles have mass, and in essence, why we exist. Olga Botner from the Swedish Academy explained the finding. Gravitation and electromagnetism are the most well-known, they attract or repel, and we can see their effects with our own eyes. The Standard Model of particle physics unites the fundamental building blocks of nature and three of the four forces known to us the fourth, gravitation, remains outside the model. For long, it was an enigma how these forces actually work. For instance, how does the piece of metal that is attracted to the magnet know that the magnet is lying there, a bit further away? And how does the Moon feel the gravity of Earth? The explanation offered by physics is that space is filled with many invisible fields. The gravitational field, the electromagnetic field, the quark field and all the other fields fill space, or rather, the four dimensional space-time, an abstract space where the theory plays out. The Standard Model is a quantum field theory in which fields and particles are the essential building blocks of the universe. In quantum physics, everything is seen as a collection of vibrations in quantum fields. These vibrations are carried through the field in small packages, quanta, which appear to us as particles. Two kinds of fields exist: The Higgs particle, too, is a vibration of its field – often referred to as the Higgs field. Without this field the Standard

Model would collapse like a house of cards, because quantum field theory brings infinities that have to be reined in and symmetries that cannot be seen. It was not until Englert with Brout, and Higgs showed that the Higgs field can break the symmetry of the Standard Model without destroying the theory that the model got accepted. This is because the Standard Model would only work if particles did not have mass. The Higgs field is not like other fields in physics. All other fields vary in strength and become zero at their lowest energy level but not the Higgs field. Even if space were to be emptied completely, it would still be filled by a ghost-like field that refuses to shut down: We do not notice it. The Higgs field is like air to us, like water to fish. But without it we would not exist, because particles acquire mass only in contact with the Higgs field. Particles that do not pay attention to the Higgs field do not acquire mass, those that interact weakly become light, and those that interact intensely become heavy. For example, electrons, which acquire mass from the field, play a crucial role in the creation and holding together of atoms and molecules. If the Higgs field suddenly disappeared, all matter would collapse as the suddenly massless electrons dispersed at the speed of light. So what makes the Higgs field so special? It breaks the intrinsic symmetry of the world. Physics unveils other kinds of symmetries that describe our world.

### 7: Englert and Higgs win Nobel physics prize (Update 4)

*The Nobel Prize in Physics The Nobel Prizes were created just in time to enable the awards to cover many of the outstanding contributions that opened new areas of physics in this period.*

Background[ edit ] Alfred Nobel , in his last will and testament, stated that his wealth be used to create a series of prizes for those who confer the "greatest benefit on mankind" in the fields of physics , chemistry , peace , physiology or medicine , and literature. The members of the Norwegian Nobel Committee who were to award the Peace Prize were appointed shortly after the will was approved. The prize-awarding organisations followed: Michelson prizewinner , Albert Einstein prizewinner and Robert A. A maximum of three Nobel laureates and two different works may be selected for the Nobel Prize in Physics. This is a key reason why it has grown in importance over the years to become the most important prize in Physics. In the first stage that begins in September, around 3, people " selected university professors, Nobel Laureates in Physics and Chemistry, etc. The completed nomination forms arrive at the Nobel Committee no later than 31 January of the following year. These nominees are scrutinized and discussed by experts who narrow it to approximately fifteen names. The committee submits a report with recommendations on the final candidates into the Academy, where, in the Physics Class, it is further discussed. The Academy then makes the final selection of the Laureates in Physics through a majority vote. Nomination records are sealed for fifty years. Prior to , posthumous awards were permitted if the recipient had died after being nominated. In practice, it means that the lag between the discovery and the award is typically on the order of 20 years and can be much longer. For example, half of the Nobel Prize in Physics was awarded to Subrahmanyan Chandrasekhar for his work on stellar structure and evolution that was done during the s. As a downside of this approach, not all scientists live long enough for their work to be recognized. Some important scientific discoveries are never considered for a prize, as the discoverers die by the time the impact of their work is appreciated. Each medal has an image of Alfred Nobel in left profile on the obverse. The Nobel Prize medals for Physics, Chemistry, Physiology or Medicine, and Literature have identical obverses, showing the image of Alfred Nobel and the years of his birth and death " The reverse sides of the Nobel Prize medals for Chemistry and Physics share the same design of Nature, as a Goddess, whose veil is held up by the Genius of Science. Each diploma is uniquely designed by the prize-awarding institutions for the laureate that receives it. The amount of the cash award may differ from year to year, based on the funding available from the Nobel Foundation. The laureates receive a diploma, a medal and a document confirming the prize amount.

### 8: Nobel Prize for Physics won by a woman for first time in 55 years

*The Nobel Prize in Physics was awarded jointly to Isamu Akasaki, Hiroshi Amano and Shuji Nakamura "for the invention of efficient blue light-emitting diodes which has enabled bright and energy-saving white light sources.*

Higgs are jointly awarded the Nobel Prize in Physics for the theory of how particles acquire mass. In 1964, they proposed the theory independently of each other. Englert together with his now deceased colleague Robert Brout. In 1973, their ideas were confirmed by the discovery of a so called Higgs particle at the CERN laboratory outside Geneva in Switzerland. The awarded theory is a central part of the Standard Model of particle physics that describes how the world is constructed. These particles are governed by forces mediated by force particles that make sure everything works as it should. The entire Standard Model also rests on the existence of a special kind of particle: This particle originates from an invisible field that fills up all space. Even when the universe seems empty this field is there. Without it, we would not exist, because it is from contact with the field that particles acquire mass. The theory proposed by Englert and Higgs describes this process. On 4 July 2012, at the CERN laboratory for particle physics, the theory was confirmed by the discovery of a Higgs particle. Even though it is a great achievement to have found the Higgs particle – the missing piece in the Standard Model puzzle – the Standard Model is not the final piece in the cosmic puzzle. One of the reasons for this is that the Standard Model treats certain particles, neutrinos, as being virtually massless, whereas recent studies show that they actually do have mass. Another reason is that the model only describes visible matter, which only accounts for one fifth of all matter in the cosmos. To find the mysterious dark matter is one of the objectives as scientists continue the chase of unknown particles at CERN. Born in Etterbeek, Belgium. Born in Newcastle upon Tyne, UK. Professor emeritus at University of Edinburgh, UK. The views expressed in this article do not necessarily represent those of Elsevier. [Link to original source.](#)

### 9: Nobel Prize controversies - Wikipedia

*The Nobel Prize in Physics was awarded jointly to Serge Haroche and David J. Wineland "for ground-breaking experimental methods that enable measuring and manipulation of individual quantum systems.*

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