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Brian Cox - Why Did The Big Bang Happen?

Brian Cox – Proč se stal Velký třesk http://www.hypothesis-of-universe.com/docs/aa/aa_285.pdf



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English physicist and professor of particle physics Brian Cox explains the details behind the Big Bang theory. The moment where space, time and everything else that came into existence which would eventually give rise to the present day cosmos, occurred some 13.75 billion years ago. The prevailing cosmological model explaining the existence of the observable universe from the earliest known periods is known as The Big Bang theory. It is one of the best theories we have in all of science. But of course it doesn't explain everything. Like "Why" did the big bang happen in the first place. But maybe the question "Why" is not a good question. As it presupposes the Universe had a purpose. Maybe, a better question is... "How". Brian Cox points out how the idea that the universe began as an unfathomably single point, then expanded and stretched out to grow as large as it is today is truly mind boggling. But that's what the evidence strongly suggests happened. Two major scientific discoveries provide strong support for the Big Bang theory: Hubble's discovery in the 1920s of a relationship between a galaxy's distance from Earth and its speed. And the discovery in the 1960s of cosmic microwave background radiation. When scientists talk about the expanding Universe, they mean that it has been increasing in size ever since the Big Bang. But what exactly is getting bigger? Galaxies, stars, planets aren't getting bigger. Their size is controlled by the strength of the fundamental forces that hold atoms and sub-atomic particles together, and that hasn't changed. Instead it's the space between galaxies that's increasing – they're getting further apart as space itself expands. And if that's the case, one might wonder: What is the Universe expanding into? Brian Cox explains that its extremely difficult to imagine the idea that space and time itself may have been created at the big bang. As counterintuitive and as strange these ideas may sound, they have firm theoretical framework based on our understanding of the laws of physics.

Brian Cox - Why **did** the Big Bang happen? Time of science 564 thousand subscribers 410,939 views 4/2/2022 [#bigbang](#) [#science](#) English physicist and professor of particle physics Brian Cox explains the details of the big bang theory. The **moment** when **space, time, and everything else** came into being, which would eventually give rise to today's cosmos, **happened** about 13.75 billion years ago. The prevailing cosmological model explaining the existence of the observable universe from the earliest known periods is known as the **big bang theory**. It is one of the best theories we have in all of science. **I'd like to correct that theory.** But of course it **doesn't explain everything. Like "Why"** there was a big bang in the first place. But maybe the "Why" question isn't a good question. **The Big Bang happened because it "had to happen" (!) (*I'll explain later)**

As it assumes, the universe had a purpose. Maybe a better question is... "How". Brian Cox points out **that the idea** that the universe began as an inexplicably single point, then expanded and stretched to grow to the size it is today **is truly terrifying**. **So it's a good read and imagine a different model**. But that is what the evidence strongly suggests happened. Two major **scientific discoveries** provide strong support for the big bang theory: **a)** **Hubble's discovery** **which is erroneous, (I explain elsewhere)** in the 1920s about the relationship between the distance of a galaxy from Earth and its velocity. **b)** And the discovery in the 1960s of cosmic microwave background radiation. When scientists talk about the expanding universe, they mean that its size has been increasing since the big bang. **When I talk about an expanding universe, I mean that it is expanding (the curvature of dimensions is expanding)**. But what exactly is expanding? **Huh?!!** Galaxies, stars, planets don't get bigger. **That is, "locations" with curved space-time do not increase. Add other states of matter (compounds, molecules, atoms, elementary particles) among the sites**. Their size is governed by the strength of the fundamental forces that hold atoms and subatomic particles together, and that hasn't changed. Instead, it's the **space** between galaxies that **expands** **O.K.**— as space itself expands, **unpacking** they move away. And if that's the case, one might ask: What is the universe expanding into? **Brian Cox explains that it is extremely difficult to conceive of the idea that space and time itself could have been created in a big bang**. **Agreed. Space and time were already there before the Big Bang**. As counterintuitive and strange as these ideas may sound, they have a solid theoretical framework based on our understanding of the laws of physics.

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(01)- let there be light [Music] the moment where space time and everything else that came into existence which would eventually give rise to the present-day cosmos occurred some 13.75 billion years ago the prevailing cosmological model explaining the existence of the observable universe from the earliest known periods is known as the big bang theory it is one of the best theories we have in all of science but of course it doesn't explain everything like why did the big bang happen in the first place but maybe the question why is not a good question as it presupposes the universe had a purpose perhaps a better question is how How did the universe begin the question for a scientist particularly for physicists and biologists are interested in the fundamentals of life is how how how was it how did it come to be the earth is populated by so many wonderfully diverse organisms and from a physicist perspective you want to go back all the way to the beginning so this is a picture of the origin and evolution of the universe as we know it now now we made a spectacularly precise measurement of the age of the universe quite recently actually the current number is 13.75 billion years old so the picture is that 13.75 billion years ago the universe began why we don't know we don't know the answer to questions such as what happened before the big bang i get asked that a lot the answer is we don't know it's out there it's current research but we do know that the universe was extremely hot and extremely dense and extremely small 13.75 billion years ago in fact everything we can see in the universe today we think at some point was compressed into something and in fact probably smaller than an atom so it's a tremendous thought but what we know is the universe expanded and cooled ever since and as it cooled complex things began to well initially crystallize out but it's a strange thought that we know fairly well at the moment is just how precisely we understand how things began to crystallize out and just from that ball of energy 13.75 billion years ago we get today things like dna and planets and stars and people how do you go about finding out one way is to look up at the stars the other way is to build machines that can explore the universe by recreating the conditions that

were present close to the big bang the idea that the universe began as an unfathomably single point then expanded and stretched out to grow as large as it is today is truly mind-boggling but that's what the evidence strongly suggests happened and just because something is unimaginable to us does not mean it can't be reality to quote neil degrasse tyson the universe is under no obligation to make sense to you two major scientific discoveries provide strong support for the big bang theory hubble's discovery in the 1920s of a relationship between a galaxy's distance from earth and its speed and the discovery in the 1960s of cosmic microwave background radiation when scientists talk about the expanding universe they mean that it has been increasing in size ever since the big bang but what exactly is getting bigger galaxies stars planets are getting bigger their size is controlled by the strength of the fundamental forces that hold atoms and subatomic particles together and that hasn't changed instead it's the space between galaxies that's increasing they're getting further apart as space itself expands and if that's the case one might wonder what is the universe expanding into Expanding the universe the standard answer as best we know at the moment is that it doesn't expand into anything because it's space itself and actually space time if you talk to einstein that's expanding so it's not the right picture to think of a big bang in a pre-existing space it's not like that at all it seems that as far as we know space and time began at the big bang and they've been stretching ever since and so it's kind of a related idea is where did the big bang happen you think well we're in this big box of the universe did it happen over there or over there over there it happened everywhere because all the space was made as far as we know at the big bang so the big bang happened everywhere so it's not expanded into anything it's very difficult to picture that what i should say is that the theory that deals with this the underpinnings called einstein's theory of general relativity he wrote it down in 1915 and it's still our best theory of space and time and the theory upon which all these interesting and strange ideas rest Singularity extrapolation of the expansion of the universe backwards in time using general relativity yields an infinite density and temperature at a finite time in the past in physics a singularity is an infinitely small space within this small space exists infinite gravity and density in fact gravity within a singularity is so great that not even light can

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(01)- let there be light [Music] **the moment space-time came into being** and everything else that came into existence that would eventually give rise to the current universe happened about 13.75 billion years ago, the prevailing cosmological model to explain existence of the observable universe from the earliest known periods is known as the big bang theory, it's one of the best theories we have in all of science, **I offer another model that, unfortunately, no one reads.** http://www.hypothesis-of-universe.com/docs/eng/eng_043.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_059.pdf ; but of course it doesn't explain everything, like why the big bang happened in the first place, http://www.hypothesis-of-universe.com/docs/eng/eng_069.pdf ; but maybe the question why is not a good question because it assumes that the universe had a purpose, maybe a better question is **how did the universe come to be**, the question for scientists, especially physicists and biologists who are interested in the foundations of life, is how was how the earth came to be inhabited by so many amazingly diverse organisms and from a physics point of view you want to go back to the beginning, so this is a picture of the origin and development of the universe as we know it now. http://www.hypothesis-of-universe.com/docs/eng/eng_073.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_077.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_080.pdf ;

; They did a spectacularly accurate measurement of the age of the universe quite recently, the current number is actually 13.75 billion years, so the picture is that **the universe started** 13.75 billion years ago, why we don't know, "why" it started you don't know, but I I have a proposal for an answer : a)* before the Big Bang there is a flat, infinite 3+3D space-time without matter, without the passage of time, without the expansion of **infinite** space. Then b)* comes the "stop-state", anywhere-whenever and that is the "change of state" (big bang) to extremely curved 3+3D space-time - the beginning of "our" universe. I have described how and what happens elsewhere. (*) Then c)* when, in the genesis of the unwrapping of global (and local?) dimensions, the state of space-time approaches "the beginning" again, i.e. to the form before the big bang No. 1, when the universe = space-time will be flat, without matter, without the flow of time, infinite in space and...and a "stop-state" is about to happen, i.e. big-bang No. 2. The situation repeats itself. Perhaps it repeats itself into other curvatures of dimensions, then into other "packings" of balls = elementary particles, other sequences of new laws, etc. Cyclic Universe - Roger Penrose's idea...; I, in another submission, that we do not know the answer to such questions as to what happened before the big bang, I do, I submit a new model, I have just (roughly) described it... i get asked the answer is we don't know it's out there, it's current research, but we know the universe was extremely hot, extremely dense, and extremely small 13.75 billion years ago, yes, that universe "our" i.e. after the big-bang...actually everything we can see in the universe today, **we think** that it was **squeezed** into something at some point and actually probably smaller than an atom, so it's a **tremendous idea**, wrong idea.., The big bang didn't happen at one point, some singularity, but it happened "everywhere". In the big bang, infinite space-time in time and space, there was a "change of state" (almost everywhere !!!!!*), a change of curvature from flat to extreme curvature. Then this universe (boiling vacuum) expands. Today, 13.8 billion years after the Big Bang, we have **that** boiling vacuum on Planck scales + **that** global gravitational state of space-time under the domain of OTR. We have a boiling vacuum of 10^{-44} m around us everywhere...everywhere, from it gushes out exuberant "particle pairs" and sometimes even "valid particles", fewer and fewer particles are born. After the Big Bang, explosive births, crystallization of particles, http://www.hypothesis-of-universe.com/docs/c/c_033.gif , which then "swimmed" in the plasma environment (and interacted into more complex states...atoms, molecules, compounds). Today, only a rare birth of particles next to "pairs of particles". And...and the global unwrapping of spacetime is not from a singularity, but it is so: in each >location< of the universe, the curvature is different, and the pace of the passage of time is different. http://www.hypothesis-of-universe.com/docs/c/c_240.jpg **So the speed of time is different between galaxies, and also different within a galaxy**, the curvature of np is different between galaxies, and also different within a galaxy – everything "floats" in the basic space-time grid (?)...Laws and principles are born from the Bang and are arranged in a sequence...(*). So : my model is different than **"standard compression"** as a "**tremendous thought**" to a point in the Bang before which there was "Nothing", but what we do know is that the universe has been expanding since then (unpacking) http://www.hypothesis-of-universe.com/docs/c/c_239.jpg ; expanded http://www.hypothesis-of-universe.com/docs/c/c_081.gif but here in the picture there is a singularity, in reality there is a singularity "everywhere"(!) and it cooled and as it cooled complex things started to work well at first crystallize but it's a strange idea that we know pretty well at this point how exactly we understand how things started to crystallize and just from that **ball of energy** 13.75 billion years ago today we get things like DNA **we get DNA** by "folding" style after interactions

http://www.hypothesis-of-universe.com/docs/eng/eng_009.pdf and that in genesis , which is due to the >Principle of alternating symmetries with asymmetries< http://www.hypothesis-of-universe.com/docs/eng/eng_008.jpg ; http://www.hypothesis-of-universe.com/docs/aa/aa_008.pdf and planets and stars and people how to do it to find that one way is to look up at the stars, the other way is to build machines , which can explore the universe by recreating the conditions that were present near the big bang, the idea that the universe started as an unimaginable single point ough then expanded and stretched to grow to the size it is today is truly astounding , but just what the evidence strongly suggests happened, and just because something is unimaginable to us doesn't mean **that it can't be reality**, to quote Neil Degrasse Tyson, the universe has no obligation to make sense to you, two major scientific discoveries provide strong support for the big bang theory Hubble's discovery in the 1920s of the relationship between a galaxy's distance from Earth and its velocity but this "discovery" is faulty ; The discovery presents a "stop-time" linearity between distance and speed $v = H_0 \cdot d...$, but correctly the universe presents nonlinearity, i.e. the unfolding of 3+3 dimensions... http://www.hypothesis-of-universe.com/docs/c/c_032.gif and the discovery of the cosmic microwave background in the 60th radiation, when scientists talk about an expanding universe, they mean it's getting bigger since the big bang, but what exactly is getting bigger, galaxies, stars, planets are getting bigger their size is controlled by the strength of the fundamental forces that hold atoms and subatomic particles together and that hasn't changed, instead it's the space between galaxies that's expanding, unpacking http://www.hypothesis-of-universe.com/docs/c/c_032.gif they're receding as space itself expands, and if this is the case, we might wonder what the universe is expanding into, "into". The universe expanding the standard answer as best we know at this point is not expanding "into nothing" because it's space itself O.K. and actually spacetime if you're talking to Einstein that's expanding so it's not the right picture to think of the big bang in already existing space, it is not so. ??? everything seems as far as we know space and time started at the big bang. No, they didn't come into existence in a big bang, but they changed state : 3+3D flat with a jump (jump state change) changed to extremely curved and they've been stretching ever since, so it's kind of a related **thought** where the big bang happened that's what I'm trying to do : it's a "change of state" that happened anytime anywhere you think right we're in this big box of space it happened there or there, it happened everywhere, Yes, I finally like it! But it happened everywhere in infinite 3+3D spacetime because all space was created http://www.hypothesis-of-universe.com/docs/eng/eng_101.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_098.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_097.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_093.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_095.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_092.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_094.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_087.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_082.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_079.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_075.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_071.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_069.pdf ; http://www.hypothesis-of-universe.com/docs/eng/eng_059.pdf ;

oh, not as far as we know, in the big bang, so the big **bang happened everywhere**, Yes..!, after the big-bang everywhere so it doesn't expand into anything, it's very difficult to imagine that what.., I should say that the theory that deals with this is the basis called Einstein's theory of general relativity, ? which he wrote in 1915 **and it is still our best theory of space and time**. That's not the theory of "space and time", that's the theory of the curvature of the dimensions of "Length and Time" and the theory behind all these interesting and strange ideas of extrapolation of the singularity of the expansion of the universe back in time using general relativity gives an infinite density and temperature **first you talk about the big bang happening "everywhere" and then you talk about extrapolation to the singularity...** at a finite time in the past in physics a singularity is an infinitesimally small space in this small space there is infinite gravity and density in fact the gravity in the singularity is so strong that even light cannot

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(02)- escape from it Parallel Universes occurring within a singularity the big bang was the ultimate extreme simply put the entire universe was jammed into an infinitely small space in turn this gave way to infinite temperatures density and pressure as counter-intuitive and strange these ideas may sound they have a firm theoretical framework based on our understanding of the laws of physics as we alluded before our natural instincts and senses that evolved in the african savannah have no ability to grasp infinite density but there are even more bizarre and astonishing ideas than this our universe may not be unique there could be parallel universes out there imagine that we're not in this three-dimensional space just forget one of the dimensions so imagine we're on a sheet so imagine we lived on the surface of a sheet of paper and imagine the forces of nature particularly light travelled on the sheet and then there's another force called the nuclear force the strong nuclear force that sticks your atomic nuclei together imagine that only works on the sheets as well and imagine there's another force called the weak nuclear force imagine that only works on the sheet then what would happen if there were another sheet another universe if you like just floating a millimeter away let's say well you wouldn't see it because light is confined to your sheet you wouldn't feel it because the forces don't come off the sheet there so it could be there now if that's true then we can try and do experiments and say how would we possibly detect it not really well known but there are some signatures of these extra dimensions as they were that you can see at the large hadron collider at cern it's a very speculative stuff so it could be i find this remarkable that there's another universe a millimeter away from your head in a big sheet stretching out infinity in all directions and you just don't perceive it because the forces that are existing exerted on us that hold us together don't travel from one sheet to the next of course it would be extremely difficult if not impossible Conclusion to prove the existence of other universes if they do not interact in any way shape or form with our own universe however if there comes along a theory that is extremely accurate in describing how our own universe operates and in addition that theory also predicts the existence of other parallel universes it will be reasonable to infer the existence of other universes despite the lack of physical data to a lay person it may seem that physical cosmology is producing all sorts of stories without any backing of actual data but that could not be farther from the truth for example the big bang theory although dismissed by einstein in the 1920s when it was first proposed later gathered firm ground early in the 20th century the universe was thought to be static always the same size neither expanding nor contracting but in 1924 astronomer edwin hubble used a technique to measure distances to remote objects in the sky he

discovered that the speed in which the astronomical objects move apart is proportional to their distance from each other in other words the farther away objects are from earth the faster they are moving away from us this became known as Hubble's law Hubble's law allowed astronomers to calculate how long ago galaxy started moving apart which provides an estimate of when the big bang occurred and how old the universe is and then in 1964 the cosmic microwave background radiation was discovered which is the leftover heat radiation from the big bang so we had irrefutable physical evidence to suggest the big bang happened since then theoretical physicists have described in great detail the evolution of the universe from its very first moments after the big bang it was also found that the expansion of our universe is accelerating but the cause of it remains unknown and we will explore the possible answers in another video thanks for watching did you like this video then show your support by subscribing and ringing the bell to never miss videos like this

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(02)- escape from it. Parallel universes occurring within the singularity. The big bang was the ultimate extreme simply put the entire universe was stuck in an **infinitesimal space**, which is **very unacceptable** which in turn gave way to infinite temperature density and pressure as counterintuitive and **strange**. The ideas may sound like they have a solid theoretical framework based on our understanding of the laws of physics, as we mentioned before our natural instincts and senses that evolved in the African savannah had no ability to comprehend infinite density, but there are even more bizarre and amazing ideas than this universe of ours may not be unique, **there may** be parallel universes **and in Hell there may be what?, well hell...** imagine that we are not in this three dimensional space, **forget** one of the dimensions, so imagine that we are on a sheet, so imagine that we lived on the surface of a sheet of paper and imagine that the forces of nature, especially light, traveled across the sheet, and then there's another force called the nuclear force, the strong nuclear force that glues your atomic nuclei together, imagine it only works on the sheets, and imagine there's another force called the weak nuclear force so imagine it only works on a leaf then what would happen **if** there was another leaf another universe if you like just float a millimeter away let's say well you wouldn't see it because the light is limited to your plate you wouldn't feel it because there forces don't come from the leaf, so they **might** be there now, **if** it's true, then we can try to do experiments and say how we **could** detect it, it's not very well known, but there are certain signatures of these extra dimensions, because it was what you can see at CERN's Large Hadron Collider is a highly speculative matter, so it **might** be remarkable that a millimeter from your head is another universe in a great sheet that stretches to infinity in all directions and you just don't notice it since the forces acting on us and holding us together do not travel from one leaf to another, it would of course be extremely difficult, if not impossible. Conclusion to prove the existence of other universes, **if** they do not interact in any way of shaping or form with our own universe, **if** however, a theory comes along that is **extremely accurate** in describing how our own universe works, and furthermore this theory also predicts existence of other parallel universes, **it will be reasonable** to infer the existence of others. **No one has read my hypothesis for 20 years...and even if an amateur did read it, they have no desire to respond with discussion and controversy. The only thing heard from the audience in those 20 years was insults and cursing and humiliation...right, Professor P.K.** Despite the lack of physical data, it may seem to the layman that physical cosmology produces all sorts of stories without any real data support, but this could not be further from the truth, for example the big bang theory, even though Einstein rejected it. 1920s when it was

first proposed, later gained a foothold in the early 20th century, the universe was thought to be static, always the same size, not expanding or contracting, but in 1924 **used** astronomer Edwin Hubble **technique to measure the distances** a technique to measure distances of distant objects in the sky, he discovered that the speed at which astronomical objects move away from each other is **proportional** to their mutual distance, **unfortunately he was wrong...**, the **proportionality only applies up to a distance of about 400,000 worlds. Years from the Bang and then the 3+3D space-time begins to change dramatically, its curvature increases. After the Bang, there is a boiling foam of dimensions, plasma, and in such a soup of curved dimensions of 10^{-40} m elementary particles are born in the style of "packing dimensions" into balls and other bizarre formations. And Hubble could not detect that with his instrument.**

http://www.hypothesis-of-universe.com/docs/c/c_239.jpg in other words, the farther objects are from Earth, the faster they move away from us, that became known as Hubble's law. Hubble's law allowed astronomers to calculate how long ago galaxies began to move away, giving an estimate of when the big bang occurred and how old the universe is, and then in 1964 the cosmic microwave background radiation, which is residual (relic) thermal radiation, was discovered from the big **it's still foaming spacetime** so we had **irreversible** ??? **Physicists' blindness has been going on for almost 100 years. My proposal - the model for expanding dimensions instead of expanding since the Big Bang has been sitting on the internet for 15 years and no one is paying attention,** the physical evidence that suggests the big bang happened since then theoretical physicists have described in great detail **the evolution of the universe from its very first moments after the big bang**, **that's a different song, that's a different chapter of evolution that concerns the microworld environment on Planck scales in the boiling foam DIMENSIONS of the plasma, so distinguish the evolution of the megaworld (flawed, flawed Hubble's law) and the microworld, which is environment for QM, for linear interactions),** it was also found that the expansion of our universe is accelerating, **I don't believe ((*)...**, again wrong measurements, or rather wrong substitution of observed values into the equations..., see for example Vera Rubin's mistake in the search for dark matter http://www.hypothesis-of-universe.com/docs/aa/aa_207.pdf but the cause remains unknown **((*))** and we will explore possible answers in another video . Thanks for watching, enjoyed this video, **liked.. is one of the rarer ones because it's not a "lib blah blah, nothing"...** then show your support by subscribing and ringing the bell so you like videos never leaked.

JN, 22/10/2023

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Je mi líto, že neumím mluvit anglicky a z toho důvodu jsem odkázán na automat-překladač, který nepřekládá úplně přesně a občas i tak špatně zkresleně, že čtenář si text, ideu, vyloží zcela jinak. ←

→ I'm sorry that I can't speak English and for that reason I'm dependent on the machine-translator, which doesn't translate completely accurately and sometimes even so badly distorted that the reader interprets the text, the idea, completely differently.
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