

Chapter 1 : Hawking's new research paper argues for a 'simpler' cosmos - The Hindu

Exactly 40 years after famed theoretical physicist Stephen Hawking brought event horizons and black holes into the public eye, he is now claiming that black holes don't actually exist.

Initially made available via the arXiv preprint service, it passed peer review and was published online in the Journal of High Energy Physics on April 12. Written with co-author Thomas Hertog, a theoretical physicist at the University of Leuven, Belgium, the paper adds another facet to the understanding of the universe we live in. Titled "A smooth exit from eternal inflation? Big Bang and Inflation A lot of evidence suggests that our universe originated from a singularity, an infinitely dense point where all the universe as we know it was born. We call that event the Big Bang. During inflation, the universe expanded exponentially and much faster than the speed of light. After only a second, the energy from this inconceivably gargantuan explosion condensed to form the subatomic particles that, over millions of years, created the stars, galaxies, planets and after 3. Rather we just exist inside a region of the cosmos that light has had time to reach. The first circular ripple to propagate from the splash travels at a fixed speed across the surface of the pool. So, the consequence of inflation is that there should be a LOT more universe beyond what we can see with our most powerful telescopes. Enter the Multiverse This cauliflower exemplifies a fractal in the natural world. In fact, we could be nothing more than a single bubble in an infinite, frothy ocean, a concept known as the "multiverse. This situation sounds chaotic, and it is. Proponents of this hypothesis think that eternal inflation is unstoppable, vastly complex and continually generating new universes. The math of this situation suggests the multiverse acts like a fractal. One universe may not have gravity. Another may not support the forces that hold matter together. We humans are simply lucky to have a universe that has the right environment to create what we see, a philosophical argument known as the anthropic principle. In the multiverse, our universe is merely a pocket universe where inflation has ended, and, despite the odds, it found calm to create a bounty of stars and galaxies and a bunch of humans living on some random rock pondering the cosmos. But I have never been a fan of the multiverse. The eternal inflation model of the multiverse "wipes out the separation between classical and quantum physics," Hertog said in the accompanying press release. String theory predicts that all the subatomic particles in our universe are in fact composed of one-dimensional strings that propagate through space. The vibrational state of these strings is what gives these particles their quantum state such as charge, spin and mass. But string theory also predicts the existence of the hypothetical graviton, a quantum particle that carries the force of gravity. Using the mathematical framework of string theory, this study simplifies the multiverse. Hawking and Hertog used the string theory concept of holography to reduce our three-dimensional universe down to a two-dimensional "surface," from which the universe we know and love is projected. By doing this, they were able to describe eternal inflation without general relativity, creating a "timeless state. The math is complex, but the result is interesting. The calculations have the effect of turning the infinite and fractal multiverse into a far simpler and finite situation than eternal inflation predicts. How Do We Test It? Specifically, Hertog hopes that this study may help us search for ancient gravitational waves that were generated by eternal inflation. These ripples in spacetime are far too weak for current gravitational wave detectors to detect, however.

Chapter 2 : Stephen Hawking's Last Paper Takes on the Multiverse | HowStuffWorks

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LONDON: Stephen Hawking's final research paper suggests that the universe may be one of many similar to our own, resolving a cosmic paradox of the late British physicist's own making.

Stephen Hawking wrote a lot of papers, though. Most dealt with the same sort of heady concepts as his last, and few received such an inordinate amount of attention. Claims that the paper make predictions for the end of universe, or could prove the multiverse exists abound. Even more well-known concepts like Hawking radiation have continued to elude scientists, so drawing solid conclusions from any one paper is difficult. And even for one of the brightest minds of our time, the calculations are extremely complex. No one said theoretical physics was easy. Multiverses arose, the theory goes, because of something called inflation. In the fractions of a second after our universe emerged, space-time expanded at an immense rate. As it did so, tiny quantum fluctuations expanded to become the large-scale features of the universe we observe today, and which serve as evidence that the theory might be true. Under a variation of the theory that Hawking and Hertog work with, called eternal inflation, this inflation continues forever in most places, but, in some patches, it stops. Where it stops, universes form "our own and others, in a repeating process that never ends. In these universes, the laws of physics all look different, meaning constants we take for granted like the speed of light would vary between them. But an infinite number of universes presents a problem to physicists. One of the most fundamental questions in science is why our universe looks the way it does. Why is the speed of light , miles per second? Determining the probability of our universe looking the way it does would help scientists get at the answer. Finding probabilities involving infinity is a useless exercise, though. What Hawking and Hertog have done, using a lot of complicated math, is to propose a way that we could define some boundaries on the kinds of universes that might exist. The two rely on something called the holographic principle to conduct their work. The holographic principle states that all of the information in a volume of space is contained in the boundary of the volume. In effect, it compresses a 3-D space into a 2-D space, and the end result is to make the calculations easier. Hawking himself appears to have been still at work on the theory. Just weeks before his death, he submitted a newer version of the paper containing substantial changes. His co-author Hertog will surely continue to refine the work as well. In the end, this paper is an interesting hypothesis about how our universe could look on the largest scale. It may not reshape our view of the cosmos "at least not yet" but it adds more intellectual firepower to our collective arsenal. This article originally appeared on Discovermagazine. Would you like to learn more about Stephen Hawking and his work?

Chapter 4 : 'Stephen Hawking's final research paper supports existence of multiverse'- The New Indian Ex

Stephen Hawking wrote a lot of papers, though. Most dealt with the same sort of heady concepts as his last, and few received such an inordinate amount of attention.

The iconic physicist completed the groundbreaking research from his deathbed, said co-author professor Thomas Hertog. If such evidence had been found while he was alive, it might have put Hawking in line for the Nobel prize he had so desired, reports The Sunday Times. Now he never can. In his final paper, Hawking, along with the professor for theoretical physics at KU Leuven University in Belgium, explored how these universes could be found using a probe on a spaceship. The paper also predicted how our universe would eventually fade into blackness as the stars run out of energy. Stephen Hawking dies aged Hertog also told The Sunday Times he met with Hawking in person to get final approval before submitting the paper. The Nobel committee looks for proof, not big ideas. Hawking was a deep thinker – a theorist – and his musings about black holes and cosmology have yet to get the lockdown evidence that accompanies the physics prizes, his fellow scientists said. Stephen Hawking in Hawking had one final theory to share. It was for describing the photoelectric effect, and only after it was verified by Robert Millikan, said Harvard astronomer Avi Loeb. The technology behind his means of communication was upgraded through the years, offering him the chance to sound less like a machine, but he insisted on sticking to the original voice because it had effectively become his own. The renowned theoretical physicist, who died last week aged 76, lost his ability to speak more than three decades ago after a tracheotomy linked to complications in the motor neurone disease he was diagnosed with at the age of Hawking started to communicate again using his eyebrows to indicate letters on a spelling card. Astrophysicist Stephen Hawking is assisted off the tarmac at the Kennedy Space Center by his caregiver, Monica Guy, as he is applauded by members of the flight crew after completing a zero-gravity flight. AP A Cambridge University colleague contacted a company which had developed a program to allow a user to select words using a hand clicker, according to a report in Wired magazine. It used algorithms developed by SwiftKey, a British software company best known for its predictive text technology used in smartphones. Hawking provided lectures and other texts to help the algorithm learn his language, and it could predict the word he wanted to use by just inputting per cent of the letters. But despite the upgrades to the software, one thing remained constant: Hawking stuck with the sound produced by his first speech synthesiser made in It helped cement his place in popular culture. Part of this report was originally published by The Sun and has been republished with permission.

Chapter 5 : Prof Stephen Hawking's multiverse finale - BBC News

Stephen Hawking submitted a new research paper just two weeks before his death, detailing his thoughts and predictions on how our universe would end. Hawking and his co-author, Thomas Hertog, wrote the paper on his deathbed.

John Madiro I totally subscribe to the multiverse theory. At such a level of understanding regular mathematics cannot be relied on to explain. I think this paper would have been convincing more if professor Hawking et al had used probabilistic methods of fractal analysis from both phenomenological topographic and numerical microscopic stand points. This is a sweet paper. Surely in a multiverse, especially in an infinite one, there are a LOT of multiverse theories. Stephen Hawking was very kind and lenient with the Mathematics in explaining the argument as his reasoning was mathematically consistent. Apologies if I answered to your wrong post initially. If there is truly a multiverse of infinite proportions, it would take an infinite number varying multiverse theories to fill it. I claimed fifth Beatle over 50 years ago. You should have seen that place rock. Everything that is emitted from a conscious experience is being observed on the face of a sphere and what is is only important on that surface. TLongmire 4 years ago As noted previously I always believed I was in a devise of sorts here is my attempt to explain. Perhaps I am being confined in order that my true nature can be known who knows. I used to ask why I was here and got the answer I was being held ransom perhaps I misunderstood and they said I was being held here while they ransome tests, haha. It seems to me that the devise is emitting a beam of energy at my brain, which by its very nature is a matrix, while an observer is analyzing the resulting outcome. The resulting diffusion of energy is a 3-dimensional fractal continuously expanding outward in all directions or my ora which is being observed at a given distance so it appears as a sphere. As the observer perceives my ora it analyzes the resulting fractals like divining the surface of the sun and forms ideas within itself and then these ideas are conveyed back to me as thoughts to see how I react. In this reality we are observed so that perhaps we become aware. So what I perceive as my conscious mind is my perception of the observed sphere that hazy mirrored reflection and my thoughts which are actually the interpretation of the observed sphere by another. If we are only this then why do we perceive so readily from the outside and not vise versa. My subconscious is the swirling chaos of the 3-d fractal while my higher consciousness is that part of the interaction that escaped the analysis of the observer and is expanding infinitely fleeing from the observers expanding sphere of analysis. With its own analysis slowing it the only hope for rapture is becoming the leading edge expanding exponentially to complete dissipation. Besides we are in a simulation and therefore reality is actually engineered. Rog Your ora can only appear spherical from a single dimension, point, at a single point in time existence. Time-space warp caused by outside influences will alter the perception of the sphere. Your 2 state choice, sphere point is a series of events in time. One observing a sphere would expect to observe a point at the given point in time predicted by previous state reversion. At this moment your aura is observing the expansion of mine limited by time, distance and space. I was lucid at a Grateful Dead concert. Nevermind how I tried to make sense of my experience the conscious mind can comprehend the holographic plane. TLongmire Your logical argument is probably sound and mathematically probable but so is the holographic principle which does allow what I stated to be real mathematically and experientially. Own the ideas and own it all. The Wackadoodles are out in force. Look, this kind of thinking is like trying to build a skyscraper with no tools. The Wackadoodle principle, on the other hand, is well understood. TLongmire Stephen Hawkings believed in both. Michael Cleveland And substantiated neither. They are still hypothetical. Might you be the toast? Magic Mushrooms Wow man, my mind is blown! Perhaps a dose of me will provide you even more clarity. Thank you for sharing your thoughts my friend! Simply read some of the comments here. AlDavisJr Some of these comments are either hallucinatory or delusional. Segment of the equator, two lines of longitude bounding it, and a pole where the latter intersect. In Bolyai showed Euclid was incomplete. The worst it can do is succeed. This is an important constant that gives us, for example, the relationship between wave length and frequency. TLongmire Look around and imagine you alone are God and all of this is your creation. Because Someone Else is God and the perfect world He created

has been marred by sin, but will be restored. The stakes are scary, and I could be mistaken “ not about the existence of God, but my standing with Him. Not about the faithfulness of His promises, but the reality or otherwise of my obedience and my right to enter into them. Neither can I think what preparations would be sufficient for spending eternity wishing that you COULD cease to exist. Better to avoid the situation by faith and repentance. If everyone believed in an fabulous afterlife there would be a lot more people killing themselves to gain that great reward. But deep down all people realize the end is simply the end! JohnBoy If no preparation is required, why did you tell me to get ready? You really ought to read what people write before commenting on them. If everybody believed in an unconditional fabulous afterlife which they only need to kill themselves to gain, they would be greatly deluded. But as I said above, there is either Heaven or Hell. It took science 50 years to prove the existence of the Higgs Boson. I highly doubt the theory of the existence of a god will ever be proven. In the mean time, the statistics favour Intelligent Design, by overwhelming odds. Good luck with that! The prophecies to which I refer are in the Bible. He is much believable than all the contradictions and human idiocy in the biggest fairy story book of all time, the bible. You do realize the bible was written by normal humans a few thousand years ago? It is the nature of conscious beings to have some mythical entity to thank for good things and blame for bad things. It is hard to take personal responsibility for all the good and bad on earth! JohnBoy Man created many gods. As for blaming Him, the blame is clearly with us humans. Judas went to his own place. The Gospel of Judas paints a pretty favorable picture of Judas Iscariot. If there is a heaven, Judas will be there and one of the stars! The Bible contradicts itself with a consistency that is truly mind-boggling. It was written by humans, who may have believed they were influenced by God, but if you think about it, you may remember that we lock people up or prescribe lithium to those who hear voices. Well, you have jumped in saying the same thing as Bwana. Michael Cleveland Lithium has a long history in the treatment of mood-related aspects of schizophrenia. There are many more than

Chapter 6 : Sorry, this content is not available in your region.

Stephen Hawking's final research paper could help astronomers find evidence that our universe is just one among many in a larger "multiverse," according to media reports.

Hawking originally studied at Oxford University in England studying physics even though he would have preferred math. He moved onto Cambridge University to work on his PhD in cosmology. A field of study that Stephen Hawking is known for is cosmology. Cosmology is the metaphysical study of the origin and nature of the universe. The universe would be completely self-contained and not affected by anything outside itself. It would neither be created nor destroyed. It would just BE. What place, then, for a creator? Rather, he points out that "if we do discover a complete theory, it should in time be understandable in broad principle by everyone, not just a few scientists. Then we shall all, philosophers, scientists, and just ordinary people, be able to take part in the discussion of the question of why it is that we and the universe exist. If we find the answer to that, it would be the ultimate triumph of human reason - for then we would know the mind of God. After extensive searching of a vast multitude of information available on the internet, one will find that it seems that Hawking did come to his own conclusion about the presence of Quantum Gravity. It appears that Hawking rested on a theory of Euclidean Quantum Gravity, which, " The Wikipedia entry for this field relates that QFT in a curved space-time is often viewed as the, " Wikipedia More recently, scientists at NASA think that they may have developed a way to view proof of Quantum Gravity, if it does indeed exist. According to his theory, these primordial black holes could have had masses as large as the Earth or as small as a single raindrop. Freedman, Basically, he believes that the beginning of real time was a singularity and all of the matter in the Universe would have been on top of itself. At this point, the laws of physics would have been broken down. The restructuring of the laws and even the matter of the Universe define the Universe as it is today. This point, otherwise known as the Big Bang, would indicate the beginning of real time. Since the laws of physics were broken down, the Universe after the Big Bang does not depend on anything that may have happened prior to its occurrence. Hawking, However, the ideas presented by Hawking are more complicated than that because they include another type of time in a four-dimensional model known as the Euclidean Space-Time. He proposes that there is an imaginary time that has no beginning and no end, it just is. If real time is a horizontal line, to the left is the past and to the right is the future.

Chapter 7 : Stephen Hawking predicted the end of the world 2 weeks before he died | Metro News

Stephen Hawking never stopped trying to unravel the mysteries surrounding black holes -- in fact, he was still working to solve one of them shortly before his death.

Chapter 8 : Stephen Hawking: Final paper on parallel universes, end of the world

Stephen Hawking submitted his final scientific paper just a week and a half before he died, and it lays the theoretical groundwork for discovering a parallel universe.

Chapter 9 : Stephen Hawking Predicted End of World in Final Research Paper

PROFESSOR Stephen Hawking submitted a research paper just two weeks before he died hinting how scientists could find another universe and predicting the end of the world.