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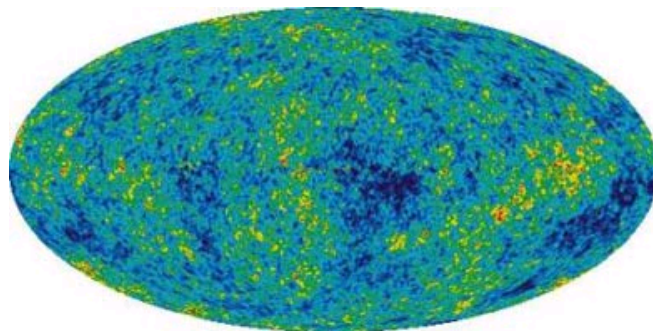
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Penrose claims to have glimpsed universe before Big Bang

Nov 19, 2010 [48 comments](#)

WMAP's view of the past: can it see beyond the Big Bang?

Circular patterns within the cosmic microwave background suggest that space and time did not come into being at the Big Bang but that our universe in fact continually cycles through a series of "aeons". That is the sensational claim being made by University of Oxford theoretical physicist Roger Penrose, who says that data collected by NASA's WMAP satellite support his idea of "conformal cyclic cosmology". This claim is bound to prove controversial, however, because it opposes the widely accepted inflationary model of cosmology.

According to inflationary theory, the universe started from a point of infinite density known as the Big Bang about 13.7 billion years ago, expanded extremely rapidly for a fraction of a second and has continued to expand much more slowly ever since, during which time stars, planets and ultimately humans have emerged. That expansion is now believed to be accelerating and is expected to result in a cold, uniform, featureless universe.

Penrose, however, takes issue with the inflationary picture and in particular believes it cannot account for the very low entropy state in which the universe was believed to have been born – an extremely high degree of order that made complex matter possible. He does not believe that space and time came into existence at the moment of the Big Bang but that the Big Bang was in fact just one in a series of many, with each big bang marking the start of a new "aeon" in the history of the universe.

Big Bang all over again

Central to Penrose's theory is the idea that in the very distant future the universe will in one sense become very similar to how it was at the Big Bang. He says that at these points the shape, or geometry, of the universe was and will be very smooth, in contrast to its current very jagged form. This continuity of shape, he maintains, will allow a transition from the end of the current aeon, when the universe will have expanded to become infinitely large, to the start of the next, when it once again becomes infinitesimally small and explodes outwards from the next big bang. Crucially, he says, the entropy at this transition stage will be extremely low, because black holes, which destroy all information that they suck in, evaporate as the universe expands and in so doing remove entropy from the universe.

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Penrose now claims to have found evidence for this theory in the cosmic microwave background, the all-pervasive microwave radiation that was believed to have been created when the universe was just 300,000 years old and which tells us what conditions were like at that time. The evidence was obtained by Vahe Gurzadyan of the Yerevan Physics Institute in Armenia, who analysed seven years' worth of microwave data from WMAP, as well as data from the BOOMERanG balloon experiment in Antarctica. Penrose and Gurzadyan say they have clearly identified concentric circles within the data – regions in the microwave sky in which the range of the radiation's temperature is markedly smaller than elsewhere.

Seeing through the Big Bang

According to Penrose and Gurzadyan, these circles allow us to "see through" the Big Bang into the aeon that would have existed beforehand. The circles, they say, are the marks left in our aeon by the spherical ripples of gravitational waves that were generated when black holes collided in the previous aeon. And they say that these circles pose a problem for inflationary theory because this theory says that the distribution of temperature variations across the sky should be Gaussian, or random, rather than having discernable structures within it.

Julian Barbour, a visiting professor of physics at the University of Oxford, says that these circles would be "remarkable if real and sensational if they confirm Penrose's theory". They would, he says, "overthrow the standard inflationary picture", which, he adds, has become widely accepted as scientific fact by many cosmologists. But he believes that the result will be "very controversial" and that other researchers will look at the data very critically. He says there are many disputable aspects to the theory, including the abrupt shift of scale between aeons and the assumption, central to the theory, that all particles will become massless in the very distant future. He points out, for example, that there is no evidence that electrons decay.

The research is described at [arXiv: 1011.3706](https://arxiv.org/abs/1011.3706).

About the author

Edwin Cartlidge is a science writer based in Rome

48 comments

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1

MJBridger

Nov 19, 2010 6:09 PM

Big EGO's get in the way of Sir Roger's theory.

It's good to see a respected scientist being "very controversial" and 'overthrowing standard inflationary theory' but this is not such a great departure from the accepted theory as suggesting that the CMB is itself not from the big bang but is the gravitationally redshifted image of infinite surrounding other cosmoses - and the reason why our cosmos is accelerating apart is because it's collective mass is pulling itself apart in connecting gravitationally with the surrounding infinity (as I put forward in 1994, in advance of the affirming observations of supernovae).

It seems that Sir Roger's theory is dependent on evaporating black holes decreasing the entropy in the universe, to get back to a starting point of low entropy. I don't buy that, it doesn't explain the beginning of a new bang and I think it misunderstands what entropy is and why it occurs - furthermore I don't accept Hawking's theory of black hole radiation/evaporation for it's many inconsistencies (the first of which may be that virtual particles should disappear regardless of whether they are separated or not).

I believe there are no black holes because all objects may radiate. According to Einstein's gravity shift equation an extreme gravity object (EGO), within it's own Schwarzschild radius, may emit negative frequency radiation, which must be valid because waves/photons of light are not negative or positive.

I believe quasars may be examples of these radiating EGO's.

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2

andwor

Nov 22, 2010 2:31 PM

Advanced Quantum Gravity

It is interesting that while soem relatively famous physicist can come out with some outre idea, and it gets a good airing, some really good solid ideas are completely ignored.

Bottom line is there needs to be a system where ideas from our lesser colleagues get some airing too.

When a paper is published by a peer reviewed journal on an important subject like "advanced quantum gravity" it should get some airing too.

And strangely enough this paper does agree with Penrose one front in that there is likely to be some anisotropy in the Cosmic black hole that generated the BIG Bang. It is likely that very anisotropy that led to the early formation of galaxies around large primordial black holes, that then formed the supermassive black hole that we see in the centre of galaxies today.

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3

reader01

Nov 22, 2010 3:03 PM

The Big Bang over and over again?

I have just one and I think very serious question. Why would during such aeons remains the basic physics laws always the same? Because if they differ just only a little then our Space couldn't be the same. And more we have such aeons more likely is such difference probable.

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4

reader01

Nov 22, 2010 4:04 PM

Quote:

Originally posted by reader01

I have just one and I think very serious question. Why would during such eons remains the basic physics laws always the same? Because if they differ just only a little then our Space couldn't be the same. And more we have such eons more likely is such difference probable.

Perhaps if we have physical constants we can continue like loading of ship by containers. We must calculate stability of such systems in that way that constants which describe the Space in each eon make Space increase and then again decrease. In order to receive the ship above water and stable possible chain of different constants cannot be accidental but must be kept in right order. Maybe there exist special increase and decrease Space constant. The ship must be loaded and unloaded probably at the same time.

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5

Jarek Duda

Nov 22, 2010 4:10 PM
Cracow, Poland

Thermodynamics is effect not reason

I agree that picture of cyclic history of spacetime - succeeding 'stories' separated by Big Bounces, is very convenient (and more natural than inflation theories), but as MJBridger I disagree with that such Big Collapse would be just on the end of entropic death - we have to remember about CPT conservation while thinking about such singularity: it should be quite symmetric (Feynman-Stueckelberg interpretation), like in [this paper](#).

There is some strange social phenomenon among modern physicists to try to place thermodynamical properties like entropy as the reason of everything ... while by definition they appear on effective level - because of taking some statistical ensemble among possible scenarios - they are simplified pictures representing our (lack of) knowledge.

Really fundamental theories we use are time(CPT) symmetric Lagrangian mechanics (hyperbolic not parabolic PDEs) - fully deterministic - there is a single scenario and so there is directly no point in talking about probability and so entropy.

Having a concrete solution/scenario, we can introduce thermodynamical picture for example by averaging over balls, finally getting thermodynamical properties like density, average energy, probabilities, entropy... ([discussion](#))

So arrow of time just cannot be written in the fundamental equations of physics(CPT), but is a property of some their solution we live at - with relatively well defined boundary condition: Big Bang having relatively low entropy and so creating entropy gradient.

And so its symmetric sibling: Big Collapse should also have low entropy - so there are two evolutions of Universe going in opposite directions, which will finally meet near the middle, which have the largest entropy and so thermal death is there.

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6

andwor

Nov 22, 2010 5:22 PM

Quote:

Originally posted by Jarek Duda

I agree that picture of cyclic history of spacetime - succeeding 'stories' separated by Big Bounces, is very convenient (and more natural than inflation theories), but as MJBridger I disagree with that such Big Collapse would be just on the end of entropic death - we have to remember about CPT conservation while thinking about such singularity: it should be quite symmetric (Feynman-Stueckelberg interpretation), like in [this paper](#).

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probabilities, entropy... (discussion)

So arrow of time just cannot be written in the fundamental equations of physics(CPT), but is a property of some their solution we live at - with relatively well defined boundary condition: Big Bang having relatively low entropy and so creating entropy gradient.

And so its symmetric sibling: Big Collapse should also have low entropy - so there are two evolutions of Universe going in opposite directions, which will finally meet near the middle, which have the largest entropy and so thermal death is there.

I am trying to get a straw poll on:

a). the wheeler and feynman arrow of time cosmology. That is the forces of Nature are time symmetric but encounter the ultimate reflector at the big bang and the perfect absorber in an ever accelerating Universe. So the nett effect, is the arrow of time is always forwards

This would of course also explain all sorts of quantum effects including entanglement.

The other explanation is:

b). the phase wave velocity which is usually greater than the speed of light, this would also explain entanglement at a maximum velocity of c^2 . A reversal of this phase wave effect would also explain how gravitons can escape a black hole, that is their group velocity is usually greater than the speed of light (tachyonic).

c). some other effect (excluding an infinite Universe please MJB).

Please feel free to comment *logically* on a), b), or c),

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7

Jarek Duda

Nov 22, 2010 10:26 PM
Cracow, Poland

Quote:

Originally posted by andwor

I am trying to get a straw poll on: (...)

I don't think I follow, but my view on physics is much simpler ...

The starting/ending singularities are not any ultimate reflectors/absorbers, but just well spatially localized situations and so having relatively low entropy - causing its gradient: time arrows ... which by CPT symmetry should go in opposite direction before BB.

But I agree that accepting that we live not only on the end of the past as intuition suggests, but inside full space-time, explains all 'quantum' effects (like QC).

About black holes, practically all such theories require proton decay (like Hawking radiation) - if baryon number conservation can be broken, it should be made not after creating such singularity, but just before - to prevent infinite densities ... so instead of collapsing, such massive neutron star could start 'burning' neutrons in its core, becoming x-ray source ... and finally calm down having probably **about 2 solar masses**... and if there is going to be Big Collapse, history of such dead star from the second direction could be quite similar ...

Edited by Jarek Duda on Nov 22, 2010 11:20 PM.

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8

John Duffield

Nov 22, 2010 10:39 PM
United Kingdom

I saw Penrose talking about this on the recent Horizon episode entitled **Before The Big Bang**. Fair enough, we can all speculate, but why try to discredit inflation to garner publicity? General relativity tells you that inflation of sorts is a must. Think about a high-stress-energy universe somehow expanding at a constant rate. There's no inflation here, is there? Because it's expanding at a constant rate? But think about the early epoch. Everything within that universe would have been in something akin to a very low $g_{\mu\nu}$ environment. So all processes would have been subject to something like immense gravitational time dilation, and would have proceeded at a snail's pace. Hence from our perspective, with no external scale, it would have looked like the initial expansion was very rapid in comparison.

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9

Jarek Duda

Nov 23, 2010 9:12 AM
Cracow, Poland

Is cyclic scenario realistic?

John, Big Bang through inflation requires very nasty singularity (not conserving CPT?) and some special physics, while Bounce is just natural phenomenon ...

Let's return to cyclic Universe hypothesis - it have to be coped with that according to current observations, expansion is accelerating.

It's explained by repelling 'dark energy' ...

Observe that we see a part of such repelling energy of vacuum - 2.725K microwave background ($6 \cdot 10^{-5}$ of Universe energy according to Wikipedia) ... but there are also different interactions which cannot be observed so easily as EM: gravitational, weak, strong - their degrees of freedom should thermalize with this 2.725K of EM through long history of Universe - maybe it's the mysterious dark energy?

Some degrees of freedom interacts and so thermalize weaker and so could be filled only in active regions like galaxies - increasing their mass for gravitational lensing - being interpreted as dark matter halo.

If dark energy has thermodynamical nature, such repelling will decrease in time and so finally our Universe will start collapsing to close the cycle.

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10

John Duffield
Nov 23, 2010 9:22 AM
United Kingdom

It doesn't Jarek. Draw a parallel between space and gas. When we see an expanding ball of gas such as that from an ordinary explosion, we don't reason that this must have started out as a point, or that there must have been some kind of prior bounce. We know it started as a block of C4 that underwent a phase change.

Gravity didn't make the early universe contract, and thus there's no reason why it would make a later universe contract. Gravity alters motion through space, but it doesn't pull that space back in on itself.

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11

Jarek Duda
Nov 23, 2010 10:21 AM
Cracow, Poland

Ok, I thought about inflation as starting from a mathematical point - in which time started - manifold being locally R^4 degenerated into kind of a cone.

If it started with some extremely dense state of matter - the question is what was before?

Natural answer is that large amount of this energy is kinetic one - from preceding collapse ...

If you propose that it was instead some relatively stable state, which finally destabilized and exploded, there is needed some concrete state of matter - of enormous (much larger than any quark stars), but finite density ... ?

And there still remains question - where this matter comes from?

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12

reader01
Nov 23, 2010 1:39 PM

Imagination

I have imagination of pulsating Space-time probably similar to spring (oscillator) and thus having Space wave-function. I know that such oscillator if we want to count down some results needs to count also with entropy. I am asking: exist any equation of spring (wave-function) consist of entropy as part of this equation?

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13

andwor
Nov 23, 2010 3:27 PM

Quote:

Originally posted by Jarek Duda

Ok, I thought about inflation as starting from a mathematical point - in which time started - manifold being locally R^4 degenerated into kind of a cone.

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Natural answer is that large amount of this energy is kinetic one - from preceding collapse ...

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And there still remains question - where this matter comes from?

If you want to know the origin of the Universe consider this: All matter was compressed into Cosmic black hole within a black hole, with a schwarzschild radius some 9 km across (that by the way is also the size of a minimum mass naturally occurring black hole). You can do the gravitational calculations and you get a quite a precise fix and what you have is a black hole itself within a black hole and the mass comes out at 3.6×10^{61} Kg. Again using mathematical triangulation this is precisely the minimum mass black hole squared, and also the mass of the observable Universe $\times c$ (the speed of light).

Before it reached the state of being a black hole within a black hole it could have been in a relatively stable state, accumulating more matter for a billion times longer than the age of the Universe as it is now. At the point the Cosmic black hole reached a black hole within a black hole it became a true singularity and had to explode into the Big Bang, and the rest including inflation, as they say is history.

See: String quintessence and the formulation of advanced quantum gravity. Physics Essays 22: 364-377

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14

Ragtime
Nov 23, 2010 4:31 PM
Prague, Czech Republic

I've still problem with model of prof. Penrose - as I cannot imagine, why/how previous generation of Universe should manifest itself with concentric rings in CMB on the sky. If the history of Universe is cyclic in more general linear time, then the ratio of circles would be virtually incomparable. Actually Universe appears nested up to certain level like fractal, so we can observe concentric rings of dark matter around centre of galaxies and around galaxies itself - but this is apparently not, what Mr. Penrose is talking about.

If the repeated expansion of Universe would occur in reverse time, then the circles could be roughly of the same diameter, but the left diagram on the above picture would appear completely different.

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15

Imre von Soos

Nov 23, 2010 9:34 PM

[b]Conservation of energy versus entropy[/b]

According to the principle of conservation of energy, the quantity of energy – that includes the equivalent energies – is constant in the universe; and it must be valid for whatever size the universe was, may grow or shrink into. This implies that whatever kind and quantity of energy exists now in the universe, was and will be always coexistent with it. It also implies that, all energy forms being transduceable and recyclable, the universe is a self-configuring and self-recycling organism that cannot run down; and that entropy, that has naught to do with disorder, exists only as a local phenomenon, always relative between two inertial frames. The concept of the universe embracing all that exists, nothing can disperse, dissipate, evaporate, or seep "outside" of it.

I have lost my confidence in scientific theories of mathematical origin when I have first read the following statement of Stephen W. Hawking: "I take the positivist viewpoint that a physical theory is just a mathematical model and that it is meaningless to ask whether it corresponds to reality. All that one can ask is that its predictions should be in agreement with observation." Behold the 'positivist' viewpoint, with destructive effects not only as a scientific approach in research and theorising, but, through its untruthful scientific attitude towards reality, also as a false and corruptive life-philosophy.

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16

akl1951Nov 24, 2010 10:53 AM
parliament street, India

In the light of revelation made in Penrose's paper titled 'Concentric circles in WMAP data may provide evidence of violent pre-Big-Bang activity' posted at arxiv.org...1011.3706, the age of the universe calibrated as 13.75 billion years according to NASA's latest interpretation of the WMAP data hardly holds any relevance. This has serious repercussion on the validity of the Big Bang theory about the origin of universe.

Edited by akl1951 on Nov 24, 2010 10:55 AM.

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17

Leo Vuyk

Nov 24, 2010 12:43 PM

LV Rings: a Glimpse of the Multiverse

I would propose an alternative explanation for the Low Variance (LV) circles in the WMAP, being the result of the collision or better expansion results between two expanding globular- or egg shaped universes with the same geometrical central point of origin, inside a composition of a so called "raspberry Multiverse" (Blackberry Multiverse is also allowed).

If there are 12 berries around the centre of the raspberry (in Dodecahedron configuration) then the geometry of the distribution of LV circles should show a clear dodecahedron result.

So for a dodecahedron Multiverse we (living inside one of them) should be able to observe five concentric circle systems with a regular distribution placed on a sort of equatorial circle.

However we may expect that anti-material universes in collision with our material universe will produce clarity differences of the circles or even NO circles at all.

So if LV circle systems do not show up between colliding material universes then the pattern will be not as regular as I described.

The Penrose paper does not inform us about this distribution, perhaps in the next one.

Leo Vuyk.

[bigbang-entanglement...](#)

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18

Dr. Moebius

Nov 24, 2010 5:26 PM

Duh! The Hindus knew about the cyclic universe

The Hindus knew what Penrose claims, 5000 years ago. Called the Breath of Brahma, they knew the universe was an 'eternally expanding-contracting' (sphere) volume. The time of expansion occurs over 4 eras, aeons, or as the Hindi say, 'Yugas', which last billions of years each.

So Roger, read up on the Hindu beliefs in the Vedas and Upanishads. But to confirm their belief scientifically and mathematically is great! We have to get around our linear thinking and understand that the universe is, was, and always will be, a periodic entity whose primary purpose is to express infinity. Every possible permutation of energy must be expressed, and since that is an infinite proposition, we'll be undergoing the process forever, just as we have eternal nothingness to balance out 'yin and yang' or "heaven & hell" - which isn't news, folks!

As JFK said best, "I am a donut" - the torus (perhaps like Haramein's double torus) is forever oscillating. How cool is that?!

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19

apollo temple

Nov 25, 2010 12:56 AM

Where modern thought meets Ancient Wisdom

This world, the same for all,
none of the gods or humans created
but always was is & shall be
Fire Everliving, inflamed by laws
and by laws extinguished! fragment DK22b30

Heraclitus of Ephesus, 2500 years ago...

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20

Imre von Soos

Nov 25, 2010 3:15 PM

I am delighted to be scientifically informed that the existence of the infinitely multi-cycled multiverse of endless Big Bangs, which has been already accepted (or else!) by mainstream scientists, has been conclusively proven by ancient scriptures, like the Vedas, the Upanishads, the Dhammapada, the Tao Te Ching, the Old Testament, the Talmud, the Torah, the Kalevala and the Thousand and One Nights.

Its raison de devenir et d'être has been long since resolved by Professor Hawking, by declaring that "the Big Bang is a beginning that is required by the dynamical laws that govern the universe. It is therefore intrinsic to the universe, and is not imposed on it from outside. .. Rather, the universe, and time itself, had a beginning in the Big Bang, about 15 billion years ago."

In other words: once upon a non-time and non-space, when only 'the blue' existed, so that out of it a dimensionless and pointless point can happen to happen, because it was so "required by the dynamical laws that govern the universe", which this pointless point had to big bang itself into, in order that the dynamical laws that govern it should have something to be intrinsic to and be able to govern.

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21

dchakalov

Nov 25, 2010 9:49 PM

Quote:

Originally posted by Dr. Moebius

The Hindus knew what Penrose claims, 5000 years ago. Called the Breath of Brahma, they knew the universe was an 'eternally expanding-contracting' (sphere) volume. The time of expansion occurs over 4 eras, aeons, or as the Hindi say, 'Yugas', which last billions of years each.

So Roger, read up on the Hindu beliefs in the Vedas and Upanishads. But to confirm their belief scientifically and mathematically is great!

May I offer an old Tanzanian saying:

How do we know that Father Christmas has a beard?

We know it, because snow falls when he shakes his beard.

Replace 'beard' with 'aeon', then with 'evaporating black holes that remove entropy from the universe', and soon you will understand how the marks left in your aeon by the spherical ripples of gravitational waves (what else?) were generated when black holes collided in the previous aeon.

Don't say you didn't know about my discovery!

Father Christmas (a.k.a. D. Chakalov)

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22

indiana-starman

Nov 25, 2010 10:02 PM

Interesting

Nice to see some of my own concepts and theriums come to light

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23

Neulwen

Nov 25, 2010 10:42 PM

Norway

I don't get how CMB from previous aeons would be visible in our aeon; if the universe becomes infinitesimally small before each big bang, wouldn't it in doing so destroy all information that existed in it beforehand, including the CMB patterns?

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24

mansy

Nov 25, 2010 11:32 PM

I wrote a science fiction story about it five years ago.

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25

Ragtime

Nov 26, 2010 2:57 AM

Prague, Czech Republic

Such findings can ruin both Big Bang models, both cyclic models of universe easily. The problem with all these models is, they're considering, our local place in universe is the youngest one, thus violating Copernican principle.

www.physorg.com...-universe-young.html

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26

dratman

Nov 26, 2010 3:29 AM

cherry Hill, United States

But how many angels?

According to recent simulations from University of Creeme, science and myth become indistinguishable near a Big Raspberry Singularity. We have shown that when electrons evaporate, so do intellectual categories.

Edited by dratman on Nov 26, 2010 3:34 AM.

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27

sasanka_datta

Quote:

*Originally posted by **Dr. Moebius***

The Hindus knew what Penrose claims, 5000 years ago. Called the Breath of Brahma, they knew the universe was an 'eternally expanding-contracting' (sphere) volume. The time of expansion occurs over 4 eras, aeons, or as the Hindi say, 'Yugas', which last billions of years each.

So Roger, read up on the Hindu beliefs in the Vedas and Upanishads. But to confirm their belief scientifically and mathematically is great! We have to get around our linear thinking and understand that the universe is, was, and always will be, a periodic entity whose primary purpose is to express infinity. Every possible permutation of energy must be expressed, and since that is an infinite proposition, we'll be undergoing the process forever, just as we have eternal nothingness to balance out 'yin and yang' or "heaven & hell" - which isn't news, folks!

As JFK said best, "I am a donut" - the torus (perhaps like Hamein's double torus) is forever oscillating. How cool is that?!

I fully agree with you Dr Moebius. Chapter 10 of Bhagvad Gita says that the Universe is Cyclic in nature. It also talks about the Multiverse and that we are in one of the many Universes that are in existence.

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28

DipayankarNov 26, 2010 8:21 AM
India

Where does the Black Holes evaporate the entropy to???

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29

alphasun

Nov 26, 2010 9:54 AM

CMB

Quote:

*Originally posted by **MJBridger***

It's good to see a respected scientist being "very controversial" and 'overthrowing standard inflationary theory' but this is not such a great departure from the accepted theory as suggesting that the CMB is itself not from the big bang but is the gravitationally redshifted image of infinite surrounding other cosmoses - and the reason why our cosmos is accelerating apart is because it's collective mass is pulling itself apart in connecting gravitationally with the surrounding infinity (as I put forward in 1994, in advance of the affirming observations of supernovae).

It seems that Sir Roger's theory is dependent on evaporating black holes decreasing the entropy in the universe, to get back to a starting point of low entropy. I don't buy that, it doesn't explain the beginning of a new bang and I think it misunderstands what entropy is and why it occurs - furthermore I don't accept Hawking's theory of black hole radiation/evaporation for it's many inconsistencies (the first of which may be that virtual particles should disappear regardless of whether they are separated or not).

I believe there are no black holes because all objects may radiate. According to Einstein's gravity shift equation an extreme gravity object (EGO), within it's own Schwarzschild radius, may emit negative frequency radiation, which must be valid because waves/photons of light are not negative or positive.

I believe quasars may be examples of these radiating EGO's.

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30

alphasun

Nov 26, 2010 10:01 AM

CMB

Quote:

*Originally posted by **MJBridger***

this is not such a great departure from the accepted theory as suggesting that the CMB is itself not from the big bang but is the gravitationally redshifted image of infinite surrounding other cosmoses

Your hypothesis is very interesting and to me, more plausible than the aeon idea. I asked one of the Boomerang astronomers some time ago whether there should not be more asymmetry in the CMB in view of our galaxy's supposed origin somewhere in an explosion radiating from a centre. It seems that Prof. Penrose and his colleague have gone to the trouble of analysing a lot of CMB data, so it will be interesting to follow the discussion. I can't pronounce on their mathematical reasoning but a physically (and temporally) infinite universe seems much more logical than one based on a singularity.

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31

dchakalov

Nov 26, 2010 12:28 PM

CMB anisotropy

Quote:

*Originally posted by **alphasun***

It seems that Prof. Penrose and his colleague have gone to the trouble of analysing a lot of CMB data, so it will be interesting to follow the discussion.

V.G. Gurzadyan and R. Penrose claim in [arXiv:1011.3706v1](https://arxiv.org/abs/1011.3706v1) [[astro-ph.CO](https://arxiv.org/abs/1011.3706v1)] that their Conformal cyclic

cosmology (CCC) "in a sense, actually allows us "to see through" the big bang into the previous aeon", and has "observational predictions", which "would not be easily explained within standard inflationary cosmology."

A reality check shows that Gurzadyan and Penrose have not even tried to explain the CMB anisotropy, particularly the so-called cosmic equator: check out Michael J. Longo [arXiv:astro-ph/0703325v3](https://arxiv.org/abs/astro-ph/0703325v3) and Craig J. Copi et al. [arXiv:1004.5602v2](https://arxiv.org/abs/1004.5602v2) [[astro-ph.CO](https://arxiv.org/abs/astro-ph.CO)]. Which is why I offered the old Tanzanian saying above.

Let's not mix religion with science, okay?

D. Chakalov

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32

mikki

Nov 26, 2010 1:21 PM

Please understand CMB is the left-over K~2.75 at Indra (the Neutron) that controls our-Sun, Earth etc... We live in an Atom and the Galx is a living-Cell.... The rest of the talk is meaningless...

Quote:

*Originally posted by **MJBridger***

It's good to see a respected scientist being "very controversial" and 'overthrowing standard inflationary theory' but this is not such a great departure from the accepted theory as suggesting that the CMB is itself not from the big bang but is the gravitationally redshifted image of infinite surrounding other cosmoses - and the reason why our cosmos is accelerating apart is because it's collective mass is pulling itself apart in connecting gravitationally with the surrounding infinity (as I put forward in 1994, in advance of the affirming observations of supernovae).

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33

mikki

Nov 26, 2010 1:30 PM

Yes, Prof. Hawking is NOT a standard bearer of science- do you wish to see my recent e-mail to the Prof. on his "no-god" publicity with a Book...

Quote:

*Originally posted by **Imre von Soos***

According to the principle of conservation of energy, the quantity of energy – that includes the equivalent energies – is constant in the universe; and it must be valid for whatever size the universe was, may grow or shrink into. This implies that whatever kind and quantity of energy exists now in the universe, was and will be always coexistent with it. It also implies that, all energy forms being transduceable and recyclable, the universe is a self-configuring and self-recycling organism that cannot run down; and that entropy, that has naught to do with disorder, exists only as a local phenomenon, always relative between two inertial frames. The concept of the universe embracing all that exists, nothing can disperse, dissipate, evaporate, or seep "outside" of it.

I have lost my confidence in scientific theories of mathematical origin when I have first read the following statement of Stephen W. Hawking: "I take the positivist viewpoint that a physical theory is just a mathematical model and that it is meaningless to ask whether it corresponds to reality. All that one can ask is that its predictions should be in agreement with observation." Behold the 'positivist' viewpoint, with destructive effects not only as a scientific approach in research and theorising, but, through its untruthful scientific attitude towards reality, also as a false and corruptive life-philosophy.

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34

mikki

Nov 26, 2010 1:35 PM

Yes, there cannot be Big bang, Blackholes or CMB as hypothesized by our-fiction writers (that is the Prof. to whom public funds are being handed-out to do more fiction....) Quote:

*Originally posted by **akl1951***

In the light of revelation made in Penrose's paper titled 'Concentric circles in WMAP data may provide evidence of violent pre-Big-Bang activity' posted at [arxiv.org...1011.3706](https://arxiv.org/abs/1011.3706), the age of the universe calibrated as 13.75 billion years according to NASA's latest interpretation of the WMAP data hardly holds any relevance. This has serious repercussion on the validity of the Big Bang theory about the origin of universe.

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35

mikki

Nov 26, 2010 1:43 PM

I hope you are serious- it is not 5,000 years- more like at least 1.6×10^6 years ago knowledge- before last ice-age destruction. My Cals show that to be true...

Quote:

Originally posted by Dr. Moebius

The Hindus knew what Penrose claims, 5000 years ago. Called the Breath of Brahma, they knew the universe was an 'eternally expanding-contracting' (sphere) volume. The time of expansion occurs over 4 eras, aeons, or as the Hindi say, 'Yugas', which last billions of years each.

So Roger, read up on the Hindu beliefs in the Vedas and Upanishads. But to confirm their belief scientifically and mathematically is great! We have to get around our linear thinking and understand that the universe is, was, and always will be, a periodic entity whose primary purpose is to express infinity. Every possible permutation of energy must be expressed, and since that is an infinite proposition, we'll be undergoing the process forever, just as we have eternal nothingness to balance out 'yin and yang' or "heaven & hell" - which isn't news, folks!

As JFK said best, "I am a donut" - the torus (perhaps like Hamein's double torus) is forever oscillating. How cool is that?!

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36

dwyersuncreation

Nov 26, 2010 6:02 PM

"Penrose claims to have glimpsed the universe before the Big Bang" is a correct statement via data of WMAP, however is perhaps overboard in assuming there was more than one Big Bang. There again, Penrose is close -- but not on point. Assuming that the Beginning was a Pure Hydrogen environment (account for unknown), what if: 1) there was Void-Friction-Spark-Matter; 2) an atom-egg came into being, but did not grow into an explosion; 3) the growing atom became the first genesis Sun; and 4) this Sun shed portions of itself (which Penrose would equate to "each big bang making the start of a new 'aeon' in the history of the universe." Bottom Line: Penrose is stepping out of the Big Bang box, but still clinging to it as the only theory of the Beginning still on the table (which has been challenged in 2008 as to "no exploding atom.") Finally, there is no need for temperature variations with a non-exploding atom-egg beginning. The Time and Temperature calculations after a miniscule second of "the big bang" have proved unworkable in light of physics. I would like to see the data looked at in a new dimension of no big bang.

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37

dwyersuncreation

Nov 26, 2010 6:06 PM

Quote:

Originally posted by Neulwen

I don't get how CMB from previous aeons would be visible in our aeon; if the universe becomes infinitesimally small before each big bang, wouldn't it in doing so destroy all information that existed in it beforehand, including the CMB patterns?

Finally, someone who is thinking clearly. Thank you for the simplicity of logic. Sincerely, r.l. dwyer

Edited by dwyersuncreation on Nov 26, 2010 6:15 PM.

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38

moirac

Nov 26, 2010 6:06 PM

This 1997 paper predicted the detection of "**concentric rings overimposed on the slow-rolling Gaussian inflationary fluctuations**" all within the framework of inflation *without* invoking exotic solutions that throw out the best explanations we have (big bang / inflation), and simultaneously requiring a closed universe in the face of clear observations to the contrary.

iopscience.iop.org...975538.text.html

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39

Dr. Moebius

Nov 26, 2010 6:34 PM

Re: Hindu knowledge

Quote:

Originally posted by mikki

I hope you are serious- it is not 5,000 years- more like at least 1.6×10^6 years ago knowledge- before last ice-age destruction. My Cals show that to be true...

Determining the precise age is impossible as any data stamp would typically need some form of Carbon dating, and as far as I can tell, most of the Vedic literature are copies from earlier works and/or oral traditions, so the 5000 year figure is really just conjecture. My point is that our ancestors were a lot more intelligent and mathematically & scientifically adroit than we tend to give them credit for, and my choice of 5000 years is to set it apart from the Renaissance or Age of Enlightenment, even our modern era.

While I am personally a fan of Penrose's works, what he and his colleagues are doing should be considered as validating earlier theories, because as the many posts here indicate, our contemporary thinking is just an extension of earlier ideas. In that way, we have to set Einstein apart, because although he stood on Lorentz's shoulders, the ideas in relativity (i.e., time dilation & length contraction, etc.) were a break from the past as far as I know, primordial.

So God= ∞ =multiverse=infinite probability expression 'device'=singular consciousness? I think what Penrose is on to from his earlier geometric work is the idea that the structure of energy -what I believe to

be undulating mobius spheroids, creating an energy wave 'foam' (hey, that's funny, a waveform? a WaveFoam!) - results in planar primitives which can culminate into larger structures.

So the 'Donut' results in the Sphere/Tetrahedron into circle/triangle relationships, which are harmonic structures, and the reason we sense solid form when physics tells us that it's mostly empty space is because of the harmony. Something happens at resonance, and I think that when we crack the math, we should be able to 'unwind' matter into energy (instead of fusing or fissioning it), giving us green energy. We should also be able to 'wind energy back up', into matter. The Enterprise's Holodeck; the transporter; warp speed.

We have infinity at our finger tips, so we should expect that anything we can think of will eventually be expressible (and like the Krell, when we can turn thought into substance, will we too, lack the wisdom to control our ego and keep the Monsters from the Id at bay? Recent political activities and corporation-legitimized greed does not provide me with a lot of hope. We really need to focus humanity on something besides the schism between fundamentalism/extremism and capitalism/materialism. If only...

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40

Daz

Nov 27, 2010 7:59 AM

Quote:

Originally posted by Imre von Soos

[O]nce upon a non-time and non-space, when only 'the blue' existed, so that out of it a dimensionless and pointless point can happen to happen, because it was so "required by the dynamical laws that govern the universe", which this pointless point had to big bang itself into, in order that the dynamical laws that govern it should have something to be intrinsic to and be able to govern.

Beautifully put, Imre. I personally find it inconceivable that something could have emerged from nothing. (Then again, I also find it inconceivable that randomness can exist without a deterministic underpinning.)

It seems far more plausible to me that time had no beginning. (Of course, this would still leave many profound questions unanswered, such as how the whole bi-eternal shebang came about.)

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41

indiana-starman

Nov 27, 2010 4:17 PM

Sorry Roger this is hardly a new concept and idea, its been around a number of years before this pub, but it is nice to see that Mainstream science is beginning to look at reality. Last time this was suggested, it was labled as hogwash, or non science. Yet again its nice to see, Big Bang, more like many little Bumps.

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42

Imre von Soos

Nov 28, 2010 4:17 PM

I am glad you have understood, Daz.

What you refer to as "deterministic underpinning", I call "underlying principle", which is the particular action of Mind over every particular process of Matter. My Universe is an integral, rational process of life, consciousness and thought underlying the phenomenal manifestations. Concepts, like indeterministic, random, chance, indicate for me only my own limitations in understanding, my own ignorance.

The sine qua non quality that characterizes the phenomenal world is movement, expressed in spatio-temporal change. Without movement there would exist no physical manifestation, energy, matter, interactive processes and, consequently, the four dimensions of space-time, all of which are thus ceaselessly co-emergent, co-existent, interdependent, interacting and co-evolving constituents of a flowing, integral and dynamic universal process.

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43

m.a.king

Nov 28, 2010 6:56 PM
Toronto, Canada

Concentric Circles

Penrose says no other mechanism has been proposed... Let's wait and see what the specialists say. A circle is such a simple shape - Einstein rings, intersection of Cerenkov radiation cone with a sphere, ... who knows what else.

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44

JulianMoore

Nov 29, 2010 11:06 AM
Newton Abbot, United Kingdom

"Electrons do not decay"

I wouldn't mind some clarification concerning Barbour's comment because, unless he has changed his approach recently or I completely misheard him (see the Penrose lectures at www.cosmolearning.com), Penrose specifically said that he was *not* saying that fundamental particles decay, merely that they become massless. Unfortunately I haven't read the Penrose book yet...

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45

Imre von Soos

Nov 29, 2010 1:07 PM

To be or mass-less be . . .

Why would and what would make a neutron, proton or electron become mass-less; what would they look like; what would be their equivalent energy; how would they interact with the run-of-the-mill kind and how with their peers; could they constitute a mass-less atom, a mass-less, and thus weightless object; has

body come across some of them as yet; perhaps a mass- and weightless neutron-star that happened to condense without gravitational force??? Please enlighten, but with a logical explanation and not with somebody's URL.

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46

mikki

Dec 1, 2010 12:40 PM

Your Qs are not easy to answer- neutron is the 'dark-matter with force'. In Sanskrit it is known as "Params with Shakthi"- Shakthi is "Iswara" that is part of Almighty-Brahman (you, I, tree, Earth, Sun etc.. is a part of that Almighty..., therefore, everything is Brahman... under the Shakthi of Iswara). Iswara makes and unmakes proton (or Sun), electron (Earth) from neutron (Indra) to do a specific "duty"... What do you think you or I or the tree doing here- a specific 'duty'.

My Cals. show our-Ancients knew that knowledge (Veda) $>1.6 \times 10^6$ (or before last ice-age destruction..., now we are heading into hot-age destruction...). That gives us a limited time to finish our-duty, here...

Quote:

Originally posted by Imre von Soos

Why would and what would make a neutron, proton or electron become mass-less; what would they look like; what would be their equivalent energy; how would they interact with the run-of-the-mill kind and how with their peers; could they constitute a mass-less atom, a mass-less, and thus weightless object; has anybody come across some of them as yet; perhaps a mass- and weightless neutron-star that happened to condense without gravitational force??? Please enlighten, but with a logical explanation and not with somebody's URL.

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47

cedley1969

Dec 8, 2010 12:06 AM

Any echo of a previous multiverse is an admission of data transfer from one event existence to the next leading to a uniform state.

Given that implication then that an infinite number of existence events may occur it is close to impossible that we actually exist in the original universe and are instead one of multiple simulations exploring every ramification of our possible existences.

No free will, and everything is just an infinite stilllife.

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48

Ragtime

Dec 9, 2010 8:55 PM
Prague, Czech Republic

It seems for me, both parts have their truth in this controversy. Before some time the dodecahedron universe model was quite popular and it leads into similar structures in CMBR distribution, too. IMO these concentric "circles" are rather nodes of emergent foam, i.e. vertices of dodecahedron, thus being another evidence of E8 heterotic structure of Universe. Mr. Garret should extend his E8 theory to the cosmologic scale... But because these artifacts aren't formed with continuous circles, the opponents of Prof. Penrose have their truth, too. These circles just cannot be seen on the sky reliably. And they're many, in fact - not just three or four.

www.aetherwavetheory...cmb_radiation.gif

www.aetherwavetheory...dodecahedron.gif

www.aetherwavetheory...honeycomb.gif

Does it mean, Prof. Penrose is wrong? Actually not quite: we are living in foamy "hall of mirrors" composed of nested Gosset-Petrie polytopes, so we can see the neighbouring universe cells - i.e. these more distant in apparent "Universe history". The duality of observational perspectives is very pronounced at the boundaries of observable Universe, because we can see things there both from inside, both from outside of it - and it's not always so easy to distinguish the interior from exterior, a reflection from refraction, etc..

From perspective of AWT, Penrose's conformal geometry is not exact model, it's just approximate. If he wouldn't try to cover it, everyone would see it clearly. His turquoise "circles" are hand drawn in Photoshop - not generated with actual data. Why such hand drawn pictures are ever allowed in scientific publication as an illustration of experimental data? If these results would be reliable to "six sigma" as Mr. Penrose is claiming, why we cannot see them directly?

eaae-astronomy.org...circles-Penrose1.png

What Penrose can actually see on the sky is the Kolmogorov map of CMB. I know about it, because I know about previous articles of his collaborator. Well, it contains some cyclic structures, but they're quite fuzzy and scale invariant. In this sense, prof. Penrose faked the presentation of these results to suit his theory better. But his insight is quite relevant in similar way, like the relativity has been "proven" with noisy data from solar eclipse in 1919 originally. Such noisy data just couldn't be published as a support of relativity by now.

www.aanda.org...img16.png

There is still rather semantic question opened, whether the parts of observable Universe can ever belong into previous generation of it - or not.

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