https://www.youtube.com/watch?v=Thw43hzXlDA

Why Cosmic Strings SHOULD Exist

Matt O´down
168 109 view
23. 2. 2022

My comment is red and translating is using Google-translator
The comment begins about the booth below 22.04.2022

(01)- In order to make a nice, clear ice cube for your drinks, it's important to consider quantum fields. First, boil to release dissolved gasses, then make sure the freezing extends through the cube from a single surface. If the crystallization process starts from multiple nucleation points then there'll be imperfections in the lattice structure where the regions of spreading ice meet - what we call topological defects. So where do quantum fields come into all of this? Well, it turns out the universe is a gigantic ice cube, and the imperfect freezing of its quantum fields right after the Big Bang very likely left vast topological defects stretching across the sky. These are cosmic strings, and many physicists think that they have to exist, and that we can find them. Reality has cracks in it. Universe-spanning filaments of ancient Big Bang energy, formed from topological defects in the quantum fields, aka cosmic strings. They have subatomic thickness but prodigious mass and they lash through space at a close to the speed of light. They could be the most bizarre undiscovered entities that probably actually exist. To understand cosmic strings, and to convince you that they probably do exist, we need to understand phase transitions in quantum fields - we need to see how a whole universe can freeze like a badly-made ice cube. Heat up ice and it melts, keep heating the water and it vaporizes, more heat still and that water vapor ionizes into plasma. But that's not the final phase transition. Keep heating until you hit temperatures of the extremely early universe and a phase transition occurs in the quantum fields that underlie all particles. Just as with water, a field's inherent temperature massively changes its behavior. For example, the force-carrying field of the modern universe has a complicated structure.There are many different ways it can vibrate. These modes manifest as different force-carrying particles moving in what we think of as separate force fields. This gives us our familiar electromagnetic, strong and weak nuclear forces. But at very high temperatures, the complexities of the quantum fields sort of get ironed out, a little like how the complex crystal structure of ice dissolves when it melts It seems pretty certain that in the first searing instant after the big bang, most of the modes of vibration of the quantum fields vanished.The many force-carrying fields behaved as a single field, generating a single master force. We know for sure that this is true of the electromagnetic and weak nuclear forces - we've re-merged those in our particle colliders - but it's almost certainly the case for the strong nuclear force and the Higgs field also. That's right, I said Higgs field. We think of the Higgs field and Higgs boson as giving elementary particles their masses, but we should also think of the Higgs as a fifth fundamental force, because it arises from the same field structure as the other non-gravity forces. And it's the freezing of this field that can give us our cosmic strings.Now a quantum field is just some numerical property that the fabric of space can have. The field at any point can oscillate

around that value, and those oscillations can have quantized energy states. These vibrations can move through space, and we see them as particles.A field's numerical value is called its field strength and it depends on the amount of energy in the field, sometimes in complex ways. In the absence of particles, a field will always drop to the nearest minimum in energy - this is the vacuum state of the field. In the early universe, the Higgs field had a very simple response to changes in energy, with a single minimum value, and even this vacuum state still contained a lot of energy. The shape of this so-called potential curve depends on the temperature. As the universe expanded and things cooled down, the Higgs field potential developed a bump. The lowest energy value was no longer a single number - instead new minima appeared around the old value. Actually, the Higgs field is really characterized by two numbers - a pair of field strengths, and so the new minimum formed a ring around the old minimum, resembling an item of festive Mexican headwear. So, quite suddenly the Higgs field everywhere in the universe found itself sitting at a higher energy than it needed. It was momentarily stable at that point, just like a ball sitting at the top of a hill. But the slightest quantum jiggle would send the ball, or the Higgs, rolling down in a random direction. And that's what happened. Here and there across the universe, the Higgs field started falling towards the new vacuum state - we call this vacuum decay. Neighboring points in a field drag on each other, pulling them towards the same value, just like how the magnetic dipoles in a ferromagnet drag each other into alignment.
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(01) - To make a nice, clean ice cube for your drinks, it is important to consider quantum fields. First cook to release the dissolved gases, and then make sure that the freeze passes through the cube from one surface. If the crystallization process starts from multiple nucleation points, then there will be imperfections in the lattice structure where the areas of expanding ice meet - what we call topological defects. (from what ?, and what?). (The Early Universe after the Bang had to start its activity with a "boiling foam dimension" that had topological defects from the very beginning. Topological inhomogeneity http://www.hypothesis-of-universe.com/docs/c/c_168.gif "boiling vacuum" 3 + 3D http://www.hypothesis-of-universe.com/docs/c/c_428.jpg moved to cosmic proportions even after "inflation" http://www.hypothesis-of-universe.com/docs/c/c_222.jpg Why? I don't know. But if so, it is precisely these defects that are the motive for the plot-full genesis of other states. As I have said elsewhere, the principle of alternating symmetries with asymmetries prevails here "at the beginning" - topological defects are proof of this. Before the Big Bang, there were no topological defects, maybe one but that was the Big Bang. Why ? I don't know… but it's clear that Bang was a jump-change state according to the symmetry rotation rule…). So where do quantum fields come from? (The "foam of curved dimensions" itself is already such a volume field jiné in each state of space-time other states "float", ie different in the sense of "set curvatures" of dimensions. Each field has a different curvature setting ..) Well, it turned out that the universe is the gigantic ice cube and the imperfect freezing of its quantum fields just after the big bang most likely left huge topological defects stretching across the sky. They are cosmic strings (http://www.hypothesis-of-universe.com/docs/c/c_362.jpg you say "huge" defects that stretch "the whole universe - cosmic strings, but here you are confusing readers because, question: they are in your country, these ***"cosmic strings stretching throughout the universe"*** are identical to the strings in String Theory ?, where you describe strings as "strings **of Nothing**"?) and many physicists think they must exist and that we can find them. (So seek, seek…) Reality has cracks in it. Cosmic fibers-strings of ancient big bang energy, created from topological defects in quantum fields, or cosmic strings. They have a subatomic thickness but an amazing mass and they rush through space at speeds close to the speed of light. (You're probably talking about something

other than stringers ...). These may be the most bizarre undiscovered entities that probably actually exist.
(Are you definitely making up fairy tales… "what are these cosmic strings made of"?). To understand the cosmic strings and convince you that they probably exist, we need to understand the phase transitions in quantum fields - we need to see how the whole universe can freeze like a poorly made ice cube. Heat the ice and it melts, continue to heat the water and it evaporates, still warm and the water vapor ionizes to the plasma. But this is not the last phase transition. Continue warming until you reach the temperatures of the extremely early universe and a phase transition occurs in the quantum fields that underlie all particles. (This is a reasoning - an abstract view of the formation of particles of the same quality, as HDV presents only under a different thought filter. You call it a "phase transition," HDV calls it a "packing of dimensions" into a ball, which in a "grainy array of scattered packages" looks like a "phase transition," or a "jump" transition of a smooth dimension into a packed dimension transition. Similar to the "grain size" of the field, a passes to field b by changing the grain size under the same denominator of curvature - phase transition) As with water, the actual temperature of the field significantly changes its behavior. For example, the force field of the modern universe has a complicated structure. http://www.hypothesis-of-universe.com/docs/c/c_344.jpg . There are many different ways it can vibrate. These modes (the mods are already the strings of the "Planck dimensions" of the cosmic string are something else, aren't they?) Are manifested as various particles carrying a force moving in what we consider to be separate force fields. (Exactly here you can see what "thought filter" contemporary physics looks at and what filter "essence" I use - HDV. I consider the force field to be "space-time of a certain curvature of dimensions 3 + 3", in which the packed ball "floats" -wave-wave package of packed dimensions = elementary particles The simplified image is here // I have no other, more suitable // http://www.hypothesis-of-universe.com/docs/c/c_426.jpg ; http://www.hypothesis-of-universe.com/docs/c/c_416.jpg in the force field which represents the "basic grid 3 + 3D", a grid with low curvature, floating and vibrating elementary particles as packages made of dimensions, you have to put this into your imagination http://www.hypothesis-of-universe.com/docs/c/c_416.jpg)
This gives us our known electromagnetic, strong and weak nuclear forces. But at very high temperatures, the complexity of quantum fields somehow equalizes, a bit like how the complex crystalline structure of ice dissolves as it melts. It seems quite certain that in the first scorching moment after the Big Bang, most of the quantum field vibration modes disappeared. Many force-transmitting fields acted as a single field that generated a single main force. (Quantum field = grain size field = topological defects of curvature in the hungry surface .., this should be the idea of "used curvatures" 3 + 3D.) We know for sure that this applies to electromagnetic and weak nuclear forces - we have merged them again in of our accelerator particles - but it is almost certainly the case with a strong nuclear force and a Higgs field. That's right, I said Higgs field. We think that the Higgs field and the Higgs boson give the elementary particles their mass, (My views are here:
http://www.hypothesis-of-universe.com/docs/aa/aa_188.pdf ;
http://www.hypothesis-of-universe.com/docs/aa/aa_181.pdf ;
http://www.hypothesis-of-universe.com/docs/aa/aa_176.pdf ;
http://www.hypothesis-of-universe.com/docs/aa / aa_175.pdf) but we should also think of the Higgs field as the fifth fundamental force, (??) because it arises from the same field structure as other non-gravitational forces. (What do you call an "array structure"? A mathematical structure from mathematical descriptions of an array? Or is it supposed to be a real-physical structure?). And just freezing this field can give us our cosmic strings. (Aha…; in the frozen vacuum you will have some kind of "objects" //observable through binoculars or a microscope// and these are the "cracks" in the 3 + 1D space-time itself, ie the "cosmic

strings", right?) Now a quantum field is just some numerical property that the structure of the universe can have. The array -smooth- at any point can oscillate around this value -wrap- and these oscillations can have quantized energy states (that is, the dimensions packed into quantum packs -float in the array- are "energy states"… **well, sure, already you speak by mouth HDV**.)

These vibrations can move (I have stolen pictures for this, eg http://www.hypothesis-of-universe.com/docs/c/c_427.gif ; http://www.hypothesis-of-universe.com/docs/c/c_424.gif) space and we see them as particles (O.K., so you are already changing the view that "field vibrations" // fields, which can be nothing but slightly curved space-time // are electronic particles and not some "Strings of Nothing.") The numerical value of a field is called the field strength and depends on the amount of energy in the field, sometimes in a complex way. In the absence of particles, the field always drops to the nearest minimum of energy - this is the vacuum state of the field. (Again, I have to point out that you are changing the filter of reasoning and perspective: that you finally consider both vacuum and the field as an environment = space-time dimension 3 + 3D.) In the early universe, the Higgs field had a very simple response to energy changes, with only a minimum value, and even this vacuum condition still contained a lot of energy. (Because it contained "dimension curvatures" and…, and **each dimension curvature is "mass = field = energy**." The principle of dimensional curvature is mass-creating !!!!!! **It is HDV**.) The shape of this so-called potential curve depends on temperature . As the universe expanded and things cooled, the **potential** of the Higgs field grew. (And how does the potential "grow" in the universe? I understand it in mathematics, but not in the Universe, "**potentials**" fly around the universe there?) The lowest energy value was no longer a single number - instead it appeared around the old value ehm) new minima. The Higgs field is actually characterized by two numbers - a pair of field forces, and so the new minimum created a ring around the old minimum resembling a piece of ceremonial Mexican headdress. So all of a sudden, Higgs' field everywhere in the universe found itself at a higher energy than needed. It was stable for a moment, like a ball sitting on top of a hill. But the slightest quantum fluctuation would send the ball or Higgs down in a random direction. And that's what happened. Here and there across the universe, the Higgs field began to decline toward a new state of vacuum - we call this vacuum decay. (Creativity knows no bounds, but it oscillates to fairy tales…; what is the "disintegration" of the vacuum? It's like a "rupture" of dimensions? A vacuum can be either just a "flat cp" or a grainy space-time; "Can only expand). Adjacent points ? in the field pull each other, and attract (??) them to the same value, just as the magnetic dipoles in ferromagnets pull each other into alignment.

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(02)- So, when vacuum decay started at one point neighboring points were dragged to the same part of the Higgs minimum. A bubble of this lower vacuum energy was nucleated, and it expanded at the speed of light. Many bubbles would have started at different places across the universe, and when the bubbles found each other and merged, the old, high-energy vacuum was completely erased. Or mostly erased. Just as with ice, topological defects should have formed where these bubbles met. Our ice cube forms sheets, but our Higgs field formed strings. Remember that the vacuum decayed in a random direction towards this circular valley. That means we can ascribe an angle to every point in space defining the relative value of the two components of the Higgs field. We'll call that the phase angle. Across a single expanding region of decaying vacuum, the phase angle would have been similar because these points were all pulled in the direction of the initial nucleation event. But independent bubbles may have very different phase angles. When bubbles met, the Higgs phase angle at the boundary tried to rotate to line up. This led to textures of slowly shifting phase angles across the universe. But if multiple bubbles join with different phase angles then sometimes

the lowest energy approach to lining up the phase angles is for them to vary smoothly around a loop - a 2-pi rotation of the phase angle around the intersection. And that left a knot somewhere inside the loop where the fields couldn't align.The Higgs field at the center of that knot was forced to take on the Higgs value at the top of the potential hill rather than the valley. It became a fossil of the ancient, high-energy vacuum that would persists into the modern universe.This sort of swirly topological defect is called a vortex, and we see 2-D versions everywhere from cyclones to swirls of hair on your head. But in a 3-D space, like, you know, actual space, this sort of defect manifests as a cylindrical swirl around a central line. And that central line is our cosmic string. Other topological defects may be possible. For example, a zero-dimensional, point-like topological defect would be a magnetic monopoles, which we talked about recently. There are also ways to produce 2-D defects called domain walls, but that's for another time. OK, so we've managed to freeze the quantum fields amidst the first bawlings of the baby universe and woven some cosmic strings. What do they look like and what do they do? Those phase angles really do prefer to line up, which means the loops around the defect tighten as much as they can. The filament of high vacuum energy is squeezed it down to one-ten-trillionth the width of a proton. And yet it still holds an incredible amount of energy, which gives it the mass of the planet Mars for every 100 meters of length. And these things are long. They started as long as light can travel between the nucleation event and the completion of vacuum decay and then the expanding universe stretched them up to the size of the observable universe. We actually expect multiple nucleation events in each causal horizon, potentially leading to dozens of cosmic strings in a network across the universe. Unlike the topological defects in ice, cosmic strings move and vibrate. They are also under pretty insane tension, so vibrations travel along them at near the speed of light. This inevitably leads to collisions between segments of strings– either two distinct strings or two sections of the same string. When this happens either the two segments pass straight through each other, or they switch partners - they intercommute. If a straight string collides with itself it can cut out a loop. Then, if the loop intersects with itself again, it forms two smaller loops, chopping up into smaller and smaller loops. But larger and larger loops keep forming from the original giant cosmic strings. Over time, the size of the largest loops increases, while at the same time populating the universe with their chopped-up offspring. Once intercommutation occurs, a pair of "kinks" is formed in each of the newly formed strings speed away from each other along the string at near the speed of light. They're whipped back and forth by the oscillating string, and the incredible mass in the kinks causes them to radiate gravitational waves. In this way cosmic strings shed energy, and so they slowly decay away. Eventually they vanish as the Higgs field smooths itself out across the filament. The smaller the loop size the quicker they evaporate, so the breaking up of loops accelerates their demise. OK, that's what cosmic strings do. Now, how do we find them, assuming they exist? Well let's start with these gravitational waves. That radiation should be emitted in beams in the direction of oscillation of the string, so we might see flashes as these beams pass over our gravitational wave observatories.
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(02)- So when the decay of the vacuum (??) began at one point, the neighboring points were dragged to the same part of the Higgs minima (Vision of an illustration fairy tale). The bubble from this lower vacuum energy was nuclear and expanded at the speed of light. (The bubble expanded. In what ?, and of what the bubble was?, Of energy ?, i.e. of matter. However: matter must be a "collapsed site of collapsed dimensions of space-time", so if it expands, it means "rapidly unpacking" those curved dimensions in a bubble "and… and this is a vision-view of the right reality of inflation, when" space-time " that the foamy vacuum exploded sharply.). Many bubbles would start in different places in space, and when the bubbles were found and combined, the old high-energy vacuum was completely erased. Or mostly deleted. As with ice, topological defects should form where these bubbles meet. Our ice cube is made up of plates, but our Higgs field is made up of strings. (? Strings of "what"? Of what ".. then a pile of strings is a higgs-field? And why not as a wavy state of dimensions, where in that chaotically wavy field there are dense localities of undulating dimensions of two spatio-temporal quantities . http://www.hypothesis-of-universe.com/docs/c/c_029.jpg why strings "from Nothing" when they can be "packages" of packed dimensions ??) Remember that the vacuum was extending in a random direction towards this circular valley. (illusory fairy tales based on mathematical considerations) This means that we can assign to each point in space an angle defining the relative value of the two components of the Higgs field. We will call it the phase angle.

(So you take a space [which is 3 dimensions of length] and you "pin" an angle to each point on the dimension and thus you have "defined" two components of the higgs-field ??? What is this nonsense? I assign "corners" to each point and I have devils and thus [higgs] Hell)

Across a single expanding region of a decaying vacuum, the phase angle would be similar, because all these points were drawn in the direction of the initial nucleation event. But independent bubbles can have very different phase angles. When the bubbles met, Higgs' phase angle at the boundary tried to turn to align. (I don't understand this idea…) This led to textures of slowly shifting phase angles across space. (So again the question: what are the strings in String Theory and what are the strings in the galactic structure of the universe? Is it the same or what?) But if more bubbles combine with different phase angles, then sometimes the lowest energy approach to align the phase angles it consists in that it changes continuously around the loop - the rotation of the phase angle (?) around the intersection by 2 pi. And that left a knot somewhere inside the loop, (? http://www.hypothesis-of-universe.com/docs/c/c_411.jpg) where the field couldn't align. The Higgs field at the center of this node was forced to take on the Higgs value at the top of the potential hill rather than in the valley. It became a fossil of the ancient high-energy vacuum that persists in the modern universe. (Well, I don't feel like thinking in "your" thoughts. This kind of spiral topological defect is called a vortex ? Http://www.hypothesis-of-universe.com/docs/c/c_286.gif ;? http://www.hypothesis-of-universe.com/docs/c/c_245.jpg) and we see 2-D versions everywhere from cyclones to hair swirls on your head. But in 3D space, like, you know, real space, this kind of defect manifests itself as a cylindrical vortex around the centerline. And that centerline is our cosmic string. Other topological defects may be possible. For example, a zero point topological defect would be the magnetic monopoles we talked about recently. There are also ways to create 2-D defects called domain walls, but other times. Okay, so we managed to freeze the quantum fields in the middle of the first roars of the children's universe and weave some cosmic strings.

(Did you-physicists or the Universe weave them?) What do they look like and what do they do? These phase angles really prefer alignment, (when the curvatures of the spatiotemporal dimensions already change), which means that the loops around the defect tighten as much as they can. The high-vacuum fiber is compressed to ten-thousandths of a proton's width (fiber…, strings…, strings ..., loops? I don't understand "what" Matt is saying here yet). And yet it still contains an incredible amount of energy, which gives it the mass of the planet Mars for every 100 meters in length. And these things are long. They began as long as light could travel between the nucleation event and the completion of the vacuum decay, and then the expanding universe stretched them to the size of an observable universe. In fact, we expect multiple nucleation events in each causal horizon, potentially leading to cosmic chains across the universe. Unlike topological defects in ice, cosmic strings move and vibrate. They are also under quite insane voltage, so vibrations propagate across them at speeds close to the speed of light. This inevitably leads to collisions between string segments - either two different strings

or two sections of the same string. When this happens, either the two segments go directly through each other, or they exchange partners - they intercomute. **If** a straight string collides with itself, it may cut out a loop. Then, **if** the loop intersects with itself again, it creates two smaller loops that cut into smaller and smaller loops. But the original giant cosmic strings still form larger and larger loops. Over time, the size of the largest loops increases and at the same time populates the universe with its chopped offspring. Once intercomutation occurs, a pair of "nodes" are formed in each of the newly formed strings, which move away from the string at a speed close to the speed of light.
The oscillating string is whipped here and there and incredible matter (or weight?) In the wrap, it causes the gravitational waves to emit. In this way, cosmic strings release energy, and thus slowly decay. Finally, it disappears when the Higgs field smoothes over the thread. The smaller the size of the loop, the faster they evaporate, so the decay of the loop accelerates their extinction. Okay, that's what cosmic strings do. And now, how do we find them, provided they exist? (Matt performed here an ***ideological vision*** that literally don't understand, but how damn close is to my concept, all that describes [thread ... Strings ... Strings ..Smarks ... nodes] are certain locations of the branch of networks 3 + 3 dimensional space-time) Let's start with these gravitational waves. (Even the gravitational waves are the deformation of the space-time itself, ie the curvature of its dimension). This radiation should be emitted in the rays in the direction of oscillation of the string, so we could see flashes when these rays pass through our gravitating wave observations.

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(03)- These are likely too weak to be seen at our current detectors such as LIGO, but future detectors such as LISA might be sensitive enough. Then there's the Pulsar Timing Array - as we've described previously, it detects gravitational waves by looking for irregularities in the period of the fantastically regular flashes of light from pulsars.It also has the potential to spot the tell-tale signals from gravitationally radiating kinks in cosmic strings. Strings in space strings .The other way to spot cosmic strings also relies on a gravitational effect: gravitational lensing - which is the warping of background light sources due to the space-time warping effect of gravity. When a massive object sits between us and a distant light source, it bends all passing rays of light inwards, so focusing them towards us. We can see multiple images or even a ring surrounding that lens. A cosmic string would also deflect light towards itself, but that can only lead to a pair of split images, and that could potential leave a chain of split images across the sky. No such chain has yet been detected, but upcoming gigantic all-sky surveys may give us the data that we need to find these. Now if we do find a cosmic string, there's one other point of confusion we'd need to settle. Is this a cosmic string, or is it a cosmic superstring? You've probably heard of string theory - we've certainly talked about it enough on this show. It's perhaps the most established candidate for a theory of everything - a theory that brings together all physics as we know it. The fundamental building blocks of the theory are these subatomic 1-dimensional filaments called, fittingly, strings. The strings of string theory have nothing to do with the cosmic strings that I described. For one thing, they're ridiculously tiny instead of universe-sized. However the universe may have found a way to confuse the two. Many physicists think that in the extremely early universe the so-called inflationary epoch expanded the subatomic into the cosmic. Some of these string-theoretic strings may have been stretched to universe-size by that event. Now those are called cosmic superstrings, and annoyingly they behave like "regular" cosmic strings in many ways - like the gravitational waves and the lensing. But there are differences. While cosmic strings almost always intercommute when they collide, cosmic superstrings are far more likely to pass straight through each other, which reduces the rate of chopping up. They can also form junctions, specifically where two different types of superstring meet and combine to form a third, connected string which is, in a sense, a combination of the two. This gives us a potential way to distinguish our cosmic string-type. If one of these superstring junctions does any gravitational lensing, it should produce a six-part image, perhaps with a parade of split pairs approaching it. Observation of such a junction would be the best - dare I say only - evidence to date in support of string theory. We also expect cosmic superstrings to decay less quickly because they don't chop into loops as fast. That means they should result in a stronger gravitational wave background, and possibly a distinct gravitational wave signature. Now we haven't actually found cosmic strings or superstrings …yet. But our searches have given us bounds on the range of allowed tensions–and therefore energies–of these things. And we have to keep looking, because it's very possible that the universe is riddled with veins of its primordial vacuum. If we can find one who knows what we'll learn? We may discover truths about the origins of the universe, or the nature of quantum fields, or the validity of string theory. Many murky mysteries may become as clear as a well-made ice cube. I mean, what better way to see its inner workings of the universe than to find a crack in the fabric of spacetime.

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(03)- These are probably too weak to be seen in our current detectors such as Ligo, but future detectors such as Lisa may be sufficiently sensitive. Then there is Pulsar Timing Array - as described earlier, detects gravitational waves by looking for irregularities in the period of fantastic regular flashlights of pulsars. It also has the potential to record signals from gravitational radiation. Strings in space strings. The second way to notice cosmic strings is also based on gravitational effect: gravitational lens - which is the deformation of light sources in the background due to space-time deformation effect of gravity. When a massive object is sitting between us and the remote source of light, it bends all the passing rays of light in, so it focuses towards us. We can see more images or even ring around this lens. The cosmic string would also deviate light together, but it can only lead to a pair of divided images, which could potentially leave the string of divided images across the sky. (Does the author of the "chain" macro -object of galactic sizes or microobjet in the sense of 10^{-44} m micro-size ... So far, the interpretation did not understand the interpretation) (?) No such string has yet been detected, but the upcoming gigantic full-air surveys can provide us with data that. We need to find them. Now when we find a cosmic string, there is one more confusion that we would have to solve. Is it a cosmic string, or is it a cosmic superstrun? You probably hear about string theory - we certainly talk about it in this program. It is perhaps the most respected candidate for all - theory that combines all physics as we know it. (?? Mathematical abstraction Which "produces" strings out of nothing ... ha-ha-ha). The basic building blocks of theory are these subatominary one-dimensional fibers called, concisely, strings. Strings Strings Theory have nothing to do with the cosmic strings I described. (Ahasah, so finally understood Matt O'Down).

First, they are ridiculously small instead of space-size. However, the universe might have found the way these two confesses. Many physicists think that in the extremely early universe, the so-called inflation epoch extended subatomic things to cosmos. Some of these strings of theoretical could be stretched into space-size events. (Then "" What Strings Are "?) Now they are called cosmic superstruh and uncomfortably in many ways behave like "ordinary" cosmic strings - such as gravitational waves and lenses. But there are differences. While cosmic strings almost always intercomputs when they collide, it is much more likely that the space superstrums pass through themselves, which reduces mowing speed. They can also form crossroads, specifically where two different types of Superstrun meet and combine to form a third, combined string, which is in a sense combination of both. This gives us a potential way to distinguish our type of cosmic chain. If one of these superstrunk connections performs a gravitational lens, it should create a six-part image, possibly with the parade of split couples approaching it. (These are fairy tales). The observation of such a connection would be best - I dare to say only - proof to support the theory of strings. Also, we expect that the cosmic superstrums will break less quickly because they are not so fast to loops. This means that they should result in a stronger background of gravitational waves and perhaps a significant signature of gravitational waves. Now we did not find cosmic strings or superstrouses ...yet. But our search gave us the limit of the permitted voltage - and therefore energy - these things. And we have to look further, because it is very possible that the universe is interwoven by the veins of its prima vacuum. If we find someone who knows what we learn? We can discover truths about the origin of the universe or about the nature of quantum fields or the validity of the string theory. Many dark mysteries can be clear as a well-made ice cube. I want to say what a better way to see his internal functioning of the universe than to find cracks in space-time structure. (Better will find crack in the thinking of physicists ... thus finally think about HDV.)

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I believe that my thoughts will be understood and will continue with smart brains improved and improved, thank you

Josef Navrátil, j_navratil@volny.cz Czech Republic

Addition

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Václav Vavryčuk - Dark Energy: Reality or Fiction? (KS Time 9.2.2022)
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customers Recording a discussion contribution listed 9. 2. 2022 under the Semicological Section Seminar, topic: Dark Energy: Reality or Fiction? The lecture is devoted to dark energy, which is one of the most encumbered and constraopering concepts in contemporary cosmology. Originally, dark energy was **introduced by** Albert Einstein ((still the tendency of

physicists can introduce the universe instead of the universe – observed)) and was called a cosmological constant. Then it was rejected to return to cosmology after time based on supernov. to return to cosmology on the basis of supernovy watching. The lecture shows that dark energy has no real physical nature, but is very likely to mere fictions caused by the use of erroneous equations for the description of the universe development. Lectures: RNDr. Václav Vavryčuk, DrSc. (Geophysical Institute of AS CR). Other information: https://users.math.cas.cz/~krisk/cos ... https://css2022.math.cas.cz/ Note to lecture content KS Time: The cosmological section seeks to learn about the world-based methods based primarily On a scientific and skeptical principle, it also does not prevent the effort to interconnect creative thoughts, which sometimes may not be entirely in line with standard or mainstream views. It is based on a platform free dissemination of information and is not linked to the rules reviewed periodicals.. Mainly, however, she always left the wisdom of students to make the most of the information to improve the subjective model not only universe, or on the contrary, to gain useful knowledge of so-called blind journeys, which very saves precious time, even can even be quite valuable (anti) inspiration. This democratic and dialectical principle would continue to maintain, despite some unfavorable responses in both lay and professional public, it is increasingly unhealthy polarized . However, we approach the minor formal fine tuning of the published content so that more expert lectures called authors (in the meeting program will be colored), from the so-called discussion contributions that do not always express generally accepted ideas or even members' opinion Cosmological sections. . In addition, we can promise that we will try to minimize cases that some of these two groups occurred by someone proclaiming evident untruth. Its author responsible for the accuracy of the lecture content. https://www.youtube.com/watch?v=1oer7quyxgk